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Upper pair. Modern reproduction of black-figure technique copied from an Attic amphora by the Goltyr Painter. *Left,* unfired. *Right,* fired.

Lower pair. Modern reproduction of red-figure technique copied from an Attic kylix by the Villa Giulia Painter. *Left,* unfired. *Right,* fired.

The Technique of Attic Vase-Painting*

JOSEPH V. NOBLE

PLATES 84-87

Studies of Greek vases have been undertaken from a variety of viewpoints for several centuries. In their historical order the following is a list of the principal areas of investigation: (1) Interpretation of paintings on vases; (2) Chronology of vases; (3) Style of painting; (4) Style of pottery; (5) Technical analysis.

The techniques used to produce Attic pottery have long intrigued scholars, but only in the past two decades has important progress been made in analyzing and reproducing them.[1] The turning point in the technical study was the reproduction of the ancient black glaze in 1942 by Dr. Theodor Schumann who used a peptized clay slip as the glaze matter and subjected his pottery to oxidizing, reducing, and reoxidizing firing conditions.

It appeared to me that there was considerable need for further study in the technique of Attic vase-painting. First, in the field of the accessory colors. These had been observed by many scholars but had not been properly reproduced. An exception is the intentional red glaze reproduced by Marie Farnsworth and Harriet Wisely.[2] Second, in the discovery of the means by which the Greek painters applied their black glaze and accessory colors to the vases, including the proper sequence. Third, in the reproduction of the technique of making the celebrated Attic relief line, which, though noted, had never been successfully reproduced.

Technical data on Greek clays, ancient or modern, are not very comprehensive. Therefore a series of spectrographic analyses was made.[3] Table I compares the composition of the clay body and the black glaze of a fragment of a foot from a fifth century B.C. vase found on the outskirts of the Agora in Athens. This comparison shows that the composition of the clay body and the black glaze are basically the same with a higher concentration of the heavier minerals in the glaze. An important point is the fact that there is no element found in substantial quantity in the black glaze which is not also found in the clay body. This bears out the findings of Dr. Schumann and other researchers that the color of the black glaze is not created by the addition of a special ingredient or pigment.

In order to reproduce an ancient Greek black

* I wish to express my gratitude to Sir John Beazley for reading the manuscript of this article and for his most valued suggestions. My thanks are also due to several of my colleagues at The Metropolitan Museum of Art for their assistance and encouragement. Mr. Murray Pease, Conservator, has been invaluable in his technical counsel. Mr. Fong Chow, Assistant Curator of Far Eastern Art, has given good advice based on a professional potter's knowledge. Lastly, Dr. Dietrich von Bothmer, Curator of the Greek and Roman Department, is a valued friend who has very kindly reviewed this manuscript. It is because of my many discussions with him about the technique of Attic vase-painting that I undertook this study.

The principal portions of this paper were read at the Sixty-first General Meeting of the Archaeological Institute of America, December 29, 1959, in New York.

[1] The following ten studies have been the most useful to me in this pursuit.

A. *The Craft of Athenian Pottery* by Gisela M. A. Richter (1923). Contains many representations of ancient potters and painters, and references to the pottery craft in ancient literature.

B. "The Genesis of the Greek Black Glaze" by Charles F. Binns and A. D. Fraser, in *AJA* 33 (1929) pp. 1-9, pls. I and II. Contains excellent early bibliography.

C. "Oberflächenverzierung in der antiken Töpferkunst. Terra sigillata und griechische Schwarzrotmalerei" by T. Schumann, in *Berichte der deutschen keramischen Gesellschaft* 23 (1942) 408-26. Summarized by Carl Weickert, "Zur Technik der griechischen Vasenmalerei" in *AA* (1942) cols. 512-28. These articles did not become available outside continental Europe until after 1945.

D. "Potter and Painter in Ancient Athens" by J. D. Beazley, ProcBritAc 30 (1946) 87-125.

E. *Attic Red-Figured Vases: a Survey* by Gisela M. A. Richter (1946); revised edition (1958).

F. "Terra Sigillata und andere antike Glanztontechniken" by Adam Winter, in *Keramische Zeitschrift*, vol. 8, no. 3 (1956) 110-13; and five additional articles in the same journal: vol. 8, no. 8 (1956) 392-93; vol. 8, no. 10 (1956) 513-17; vol. 8, no. 12 (1956) 614-15; vol. 9, no. 1 (1957) 14-16; vol. 9, no. 5 (1957) 258-59. Schumann's untimely death left a void which in Germany was filled by Adam Winter who in many ways went beyond Schumann's initial studies.

G. "Fifth Century Intentional Red Glaze" by Marie Farnsworth and Harriet Wisely, in *AJA* 62:2 (1958) 165-73, pl. 36 and color plate.

H. "Die Technik des griechischen Töpfers in ihren Grundlagen" by Adam Winter, in *Technische Beiträge zur Archäologie*, Mainz (1959).

I. "Types of Greek Glaze Failure" by Marie Farnsworth, in *Archaeology* 12:4 (1959) 242-50.

J. "Draw Pieces as Aids to Correct Firing" by Marie Farnsworth, in *AJA* 64:1 (1960) 72-75, pl. 16.

[2] See note 1, G supra.

[3] All of the spectrographic analyses were made by Lucius Pitkin, Inc., New York, N.Y.

TABLE I; Comparison of Spectrographic Analyses of 5th Century B.C. Clay and Black Glaze.

	5TH CENTURY B.C. ATTIC CLAY	5TH CENTURY B.C. ATTIC BLACK GLAZE
Silicon	Major	Major
Aluminum	Major (low)	Major
Iron	Major (low)	Major
Titanium	O.X (high) (1)	Minor (2)
Magnesium	Minor (1)	Minor (2)
Calcium	Minor (1)	Minor (1)
Copper	O.OOX	O.X (high)
Potassium	O.X (low)	O.X (high)
Manganese	O.X	O.X
Sodium	O.OX	O.X
Lead	O.OOX	O.X (low)
Zinc	O.OX	O.X (low)
Tin	Not found	O.OX
Nickel	O.OOX	O.OX
Chromium	O.OOX	O.OX
Barium	O.OOX	O.OX
Vanadium	Not found	O.OX (low)
Silver	Not found	O.OOX

Elements checked but not found: Antimony, Arsenic, Bismuth, Cadmium, Cobalt, Indium, Lithium, Molybdenum, Strontium, Tungsten.

Note: Major = above 5% estimated.
Minor = 1-5% estimated.
.X, .OX, .OOX, etc. = concentration of the elements estimated to the nearest decimal place—e.g. .OX = .01 - .09% estimated.
The numbers in parentheses indicate the estimated relative concentration of the elements among the various samples.

The elements are listed in the order of their frequency in the samples.

The elements not found are listed in alphabetical order.

glaze it was essential to obtain specimens of clay from present day Greek sites. In this I was aided by C. Vassilopoulos & Sons of Athens, manufacturers of modern Greek pottery, who generously sent me samples of three Greek clays: a red Athenian clay; a lighter colored clay from a deposit on the island of Aegina, near the village of Mesagro (not far from the temple of Aphaia); and a brownish clay from Chalkis on Euboea.

Spectrographic analyses of these three clays (Table II, cols. 2, 3, and 4) show surprising similarities between them. The clay sources are separated by not more than a hundred miles which, geologically speaking, is a relatively short distance. This attests to the readily available deposits of high quality clay. Variation in the iron content and perhaps the inclusion of decayed vegetable matter probably account for the slight difference in the color of the three clays.

Although the color of the fired modern Attic clay closely resembles that of the fired ancient Attic clay, there are differences in their composition. In Table II, a comparison of column 1 and column 2 shows a greater difference between the ancient and modern Attic clays than between any two of the modern clays tested. These differences in the Attic clays do not interfere in the production of the black glaze. Obviously the modern clay comes from a different pit or from a much lower stratum in an ancient pit than does the ancient sample. This indicates the excessive working of the Attic clay sources in ancient times.

A comparison of the composition of the Greek clays, ancient and modern, with a fragment of a South Italian Apulian bell krater of about 350 B.C. (Table II, col. 5) reveals many differences. Primarily the Apulian clay lacks many of the heavier minerals present in the Greek clays. It is possible that these differences account in part for the poorer quality of the black glaze of South Italian pottery.

A second series of examinations were temperature tests designed to check the maximum temperature at which the ancient black glaze was fired. Another fifth century B.C. black glazed fragment from Athens was broken into four smaller pieces. Three of these pieces were subjected to different temperatures under oxidizing conditions to determine the maximum temperature at which the black glaze would remain unchanged. The fourth fragment was retained without refiring as a control specimen.

It was found that at 945° C. there was no visible change, at 1000° C. the black glaze developed a slightly iridescent appearance, and at 1050° C. the black glaze reoxidized and turned red.[4]

[4] In all of the tests I used a small electric kiln. Temperatures were gauged by the use of pyrometric cones rather than by a pyrometer. The cones have the advantage of indicating the effect of prolonged heat as well as the temperature and therefore measure the effect of the firing of the pottery more closely.

TABLE II; Spectrographic Analyses of Five Clays

	Column 1	Column 2	Column 3	Column 4	Column 5
	5th Century B.C. Attic Clay	Modern Clay from Athens	Modern Clay from Chalkis	Modern Clay from Aegina	4th Century B.C. South Italian Clay
Silicon	Major	Major	Major	Major	Major
Aluminum	Major (low)	Major	Major	Major	Major
Iron	Major (low)	Minor (high)	Minor (high)	Minor (high)	Minor
Titanium	O.X (high)	Minor (low)	Minor (low)	Minor (low)	O.X (low)
Magnesium	Minor	O.X	O.X	Minor	Major
Calcium	Minor	Minor	Minor (low)	Major (low)	Major
Copper	O.OOX	O.OOX	O.OOX	O.OOX	O.OOX
Potassium	O.X (low)	Minor (low)	Minor (low)	Minor (low)	Not tested
Manganese	O.X	O.X (low)	O.X (low)	O.X (low)	O.OOX
Sodium	O.OX	O.OX (low)	O.X (low)	O.OX	O.X
Lead	O.OOX	O.OOX	O.OOX	O.OOX	O.OOX
Zinc	O.OX	Not found	Not found	Not found	Not found
Tin	Not found	Not found	Not found	Not found	Not found
Nickel	O.OOX	O.OOX	O.OOX (low)	O.OX (low)	Not found
Chromium	O.OOX	O.OX (low)	O.OOX	O.OX (low)	Not found
Barium	O.OOX	O.X (low)	O.OX	O.OX (low)	Not tested
Vanadium	Not found	O.OOX	O.OOX	O.OOX	Not found
Silver	Not found	Not found	Not found	Not found	Not found
Zirconium	Not tested	O.OOX	O.OOX	O.OOX	Not found

Elements checked but not found: Antimony, Arsenic, Bismuth, Cadmium, Cobalt, Indium, Lithium, Molybdenum, Tungsten.

Tests with the modern Attic clay determined the maximum and minimum temperatures of firing. At 825° C. the clay fired merely to a brownish red. At 945° C. it fired to a satisfactory red very similar to ancient Attic pottery. At 1005° C. the red in the clay became a more intense red and was no longer very satisfactory. These tests show that the highest temperature to which the ancient pottery was ideally subjected could not have been in excess of 950-975° C. This test and subsequent tests with the black glaze proved that the lowest temperature at which it could be fired was not much below 825° C.

With the composition and firing temperature of the clay body ascertained, the preparation of a black glaze based on the reports of Schumann, Winter, and Farnsworth and Wisely was undertaken. Two years of experimentation brought about some modifications. I obtained the best results with the following process. In one pint of distilled water dissolve 2½ grams of Calgon (sodium hexametaphosphate), $(NaPO_3)_6$. Calgon is the peptizing, or deflocculating, agent. When it is thoroughly dissolved, mix completely into the solution 4 ounces by weight of damp Attic clay.[5] This mixture is allowed to stand in a tall glass container for forty-eight hours. During this time, it separates into three clearly recognizable areas. At the top a substantial quantity of very fine particles of clay is suspended in a colloidal suspension. Between this top colloidal zone and the bottom zone, there is a clearly visible area of clay slip composed of particles of average size. At the bottom there are sand and coarser particles which were present in the clay.

[5] The formula given in the metric system is: ½ liter distilled water; 2½ grams Calgon; sodium hexametaphosphate $(NaPO_3)_6$, 115 grams damp Attic clay.

The deflocculating agent used by the ancient Attic potters may have been potash (potassium carbonate, K_2CO_3) produced by soaking wood ashes in water. Potash is completely satisfactory in the preparation of the black glaze.

With a siphon the top colloidal suspension of fine particles is carefully removed for further preparation of the black glaze. The middle zone may be used in making the clay body of a vase. The bottom zone is discarded.

The suspension of fine particles has to be thickened by evaporation. The water is allowed to evaporate over a period of several weeks or, to accelerate the process, the solution can be boiled down without injury. Evaporation is continued until the liquid has the consistency of very heavy cream. This constitutes the glaze slip with which the Attic vases were decorated. The unfired glaze matter is of a deep brown tone, and darker than the plain Attic clay. It already possesses, when dry, a slightly metallic sheen. Glaze matter which does not possess this metallic sheen in the dry state, will not fire black but will turn red in the same way as does the unglazed clay body.

The glaze matter may be dried and later prepared for use whenever desired by the addition of water. It is possible that Attic black glaze matter was exported to Greek colonies in ancient times in this form.

The term black glaze has been widely used to describe the black color on Attic pottery. Yet in some ways it is a misnomer. Potters today use the term glaze for a substance containing sufficient silica to cause it to fuse and bring about a "glassy" surface. This does not hold true for the Greek black glaze. Although there is a substantial amount of silica in the Attic black glaze, the amount is comparable to that in the clay body. At the temperature of 945° C., this silica does not completely melt. Instead, it enters a transitional stage known as sintering. The black glaze matter is applied to a vessel in the form of a clay slip, or engobe, which is then heated in the firing until it sinters. Perhaps it would be more accurate to refer to it as a sintered engobe or some other term which would take into consideration the metallic luster of the sintered surface, but I do not consider that the term "black glaze" is entirely incorrect.

In firing the vases the ancient Greeks used a kiln heated by wood or charcoal. The thoroughly dry pottery, coated with the glaze matter, is placed in the kiln and, as the black glaze does not melt in the firing process, it is possible to stack one piece on top of another without the vases sticking to each other. The ancient potters stacked their vases by nesting kylikes in skyphoi and smaller pots in larger ones, which is unlike current ceramic practice. The contemporary potter uses glazes which contain a higher percentage of silica that fuse during the firing operation and form a glassy surface very susceptible to damage during the firing. Consequently, the contemporary potter is forced to separate his glazed pieces by either not glazing the bottom of his pots, or by placing them on small clay stilts. It is common practice to fire pots unpainted and, when they are in a completely hard vitrified state, to decorate or glaze, and then refire them.

The ancient Attic potters used only one firing cycle. After the vases were formed on the wheel, they were kept in a damp room until ready to be decorated. The painting was applied directly onto this firm semi-dry or "leather-hard" clay surface. When the vases were completely dry, they were fired.

In conventional modern pottery-making the color of the glaze is determined by the addition of certain minerals, rather than by a manipulation of the particle size of the glaze, or by a cycle in the kiln which changes the atmosphere in the kiln from an oxidizing to a reducing atmosphere. Reduction firing is sometimes practiced by Asiatic, European, and American potters, who attempt to create random variations in surface colors, but such patterns are created completely by chance and are not designed.

In the firing of the black glaze heat is applied to the kiln and the temperature is increased under oxidizing conditions.[6] This is automatic in an electric kiln, but in a kiln fired by wood or charcoal, it is accomplished by allowing free access of air to the kiln. When the temperature reaches 800° C. the atmospheric condition is changed to that of a reducing atmosphere. In an electric kiln this is achieved by the introduction of a handful of wet sawdust which simulates the green wood probably used by the ancient Attic potter. In a wood fired kiln, the air vents should be closed and a large quantity of green wood, which produces smoke, should be thrown into the fire box. It is important that this reducing atmosphere be maintained for not less than a half hour by the addition of the wet sawdust or green wood. Potters call this phase a

[6] Excellent illustrations of ancient kilns appear in an article by Adam Winter (see note 1, H supra).

"soaking" period. The temperature is increased gradually, still maintaining the reducing atmosphere, until the temperature of 945° C. is reached. Then, while continuing to maintain the reducing atmosphere, the temperature is allowed to decrease slowly to about 875° C. At this temperature the last of the wet sawdust or green wood is consumed and a small amount of fresh air is introduced by opening an air hole in the kiln. This changes the atmosphere from reducing to oxidizing. The kiln is slowly cooled to room temperature maintaining the oxidizing atmosphere at which point the vase, with its characteristic red and black colors, is finished.

TABLE III; Spectrographic Analyses of Modern Attic Clay and Modern Black Glaze Made from It.

	Modern Clay from Athens	Modern Black Glaze
Silicon	Major	Major
Aluminum	Major	Major
Iron	Minor (high)	Major
Titanium	Minor (low)	O.X
Magnesium	O.X	Minor
Calcium	Minor	Major (low)
Copper	O.OOX	O.OX
Potassium	Minor (low)	Major (low)
Manganese	O.X (low)	O.X
Sodium	O.OX (low)	Minor
Lead	O.OOX	O.X
Zinc	Not found	Not found
Tin	Not found	Not found
Nickel	O.OOX	O.X (low)
Chromium	O.OX (low)	O.X (low)
Barium	O.X (low)	O.X (high)
Vanadium	O.OOX	O.OX
Silver	Not found	O.OOX (low)
Zirconium	O.OOX	Not found
Strontium	O.OOX	O.OX
Cobalt	Not found	O.OX (low)

Elements checked but not found: Antimony, Arsenic, Bismuth, Cadmium, Indium, Lithium, Molybdenum, Tungsten.

A spectrographic analysis of a modern Attic clay and modern black glaze is given in Table III. Again there are great similarities between the glaze and the clay with a noticeable concentration of the heavier elements in the glaze. This glaze was made from the same clay that was analyzed. Compare Table III with Table I for the same tests on the ancient and modern Attic clays and black glazes and notice the similarities.

Such comparative analysis offers an excellent method to differentiate between genuine Attic vases and spurious modern imitations. Elements present in the clay body, and only those elements, must be present in the glaze in an equal or greater concentration. An excellent reproduction of an Attic vase, long in the study collection of The Metropolitan Museum of Art, was tested in this manner. The glaze proved to be a conventional ceramic glaze containing a substantial amount of cobalt which was not present in the clay body. Also, there was less iron in the glaze than in the body, which is the reverse of Attic pottery. This test is also applicable to terracotta figures or other objects decorated with black glaze which were known before the discoveries of Schumann in 1942.

The contemporary potter may use pyrometric cones with various melting points to help him gauge his temperatures or he may use a pyrometer, an electrical temperature recording device which can be installed in the kiln. By observing the bending or sagging of the test pyrometric cones through a spy hole in the kiln, or by simply reading the dial of the pyrometer, the potter is kept well informed of the temperature of the kiln. The suggestion has been made that the ancient Attic potter may have used the equivalent of the pyrometric cones in the form of gold and silver wire in his kiln to ascertain his proper temperatures. The melting points of both gold (1062° C.) and silver (961° C.) are slightly above the temperatures at which ancient potters fired, so it appears that this idea is not valid. An experienced potter can rely on observation of the various incandescent colors in the kiln to determine the proper temperature. It is relatively easy without cones or instruments to judge the correct temperature for a step in this process within a margin of plus or minus 25° C. The ancient potters also used test pieces which were withdrawn from the kiln during the firing.[7]

[7] Draw pieces have been studied by Marie Farnsworth (see note 1, J supra).

The chemistry of the process is as follows. Red ferric oxide (Fe_2O_3) is present both in the clay body of the vase and in the unfired black glaze matter. If the entire firing were done under oxidizing conditions both the vase and the glaze would turn, and remain, red. In the middle of the firing cycle, however, the oxidizing atmosphere is changed to that of a reducing atmosphere by the introduction of green wood or damp sawdust. Smoke is produced by this action but it is not important chemically, as smoke is largely composed of carbon which is not the coloring agent present in the black glaze.

The reducing atmosphere, with the kiln closed to the outside supply of oxygen, causes incomplete combustion of the green wood or wet sawdust and produces carbon monoxide gas (CO) instead of carbon dioxide gas (CO_2) which would be developed during normal complete combustion. Carbon monoxide (CO) unites with any oxygen that it can obtain. In this case it combines with part of the oxygen in the ferric oxide (Fe_2O_3) in the clay, turning it into ferrous oxide (FeO). This changes part of the carbon monoxide (CO) into the stable form, carbon dioxide (CO_2), and the red ferric oxide (Fe_2O_3) into ferrous oxide (FeO) which is black. The reaction in this process is $Fe_2O_3 + CO = 2FeO + CO_2$. The presence in the kiln of water vapor from the moisture in the pottery itself, from the green wood or wet sawdust, or perhaps from the introduction of a vessel full of water in the kiln, produces a magnetic oxide of iron (Fe_3O_4) which is an even blacker oxide of iron than ferrous oxide (FeO). The reaction in this process is $3Fe_2O_3 + CO = 2Fe_3O_4 + CO_2$. If the firing cycle were stopped at this point, the clay body of the vase and the glaze would be completely and permanently black. This is the process used in the manufacture of the Etruscan Bucchero ware.[8]

In Attic pottery the process is concluded by a reoxidizing phase. Through a small hole now opened, oxygen is permitted to enter the kiln and to unite with some of the black ferrous oxide (FeO) or magnetic oxide of iron (Fe_3O_4) turning it back into the red ferric oxide (Fe_2O_3). The vase, having a porous clay body, readily allows this to happen, and consequently the body of the vase again turns red. On the other hand, the black glazed areas, composed of black ferrous oxide (FeO) combined with the black magnetic oxide of iron (Fe_3O_4), do not reoxidize at these temperatures. These areas remain black, and the result of this phase is the characteristic red and black coloring of Attic vases. The glaze does not reoxidize apparently owing to the extreme fineness of the particles making up the glaze. Instead, it becomes a partly sintered mass so dense that it does not permit the re-entry of oxygen into it, thus preventing a chemical reaction from taking place. Therefore, it appears that both physical and chemical factors inhibit the reversal of the process at this temperature. If the temperature is raised above 1050° C. the black oxides in the glaze will reoxidize to a red form and the black color of the glaze will be lost.

Occasionally in fragments of Attic and South Italian pottery evidence can be found of the three-step firing cycle. This is indicated by the grayish tone of part of the clay as seen in a fracture. This grayish color only occurs away from the glazed edge of the fragment and is best seen in the center of a broken stem of a kylix where the clay is quite thick. The gray color indicates that this center area did not completely reoxidize in the third stage of the firing. Spectrographic analyses of the gray area and the adjacent red areas show them to be identical in elements present.

A study of the mishaps which have occurred in the production of Attic vases also substantiates the process.[9] The large red areas which are considered defects on many Attic vases could have been caused by two different conditions. The presence of a draft

[8] In Pre-Columbian times several American Pueblo Indian tribes, among them the Santa Clara of New Mexico, invented a plain black pottery resembling Etruscan Bucchero ware. The vases were hand formed from a red iron-bearing clay without the use of a potter's wheel. A kiln was not used in the firing. Probably the vases were piled on the ground and a fire built over them. After the fire reached its greatest intensity it was partially smothered by covering it with animal dung. This created a great amount of smoke and changed the firing from oxidizing to reducing conditions. The fire was allowed to die out without changing back to a reoxidizing condition. The resulting pottery was completely black.

In 1918-19 Julian and Maria Martinez at the San Ildefonso Pueblo in New Mexico accidentally invented a black pottery which duplicated the Santa Clara type. However, they decorated their pottery with dull black designs over the shiny surface of the balance of the vase. After the vase was formed it was burnished. Then designs were drawn on it with a clay slip which produced a matte surface. The ware was subjected to an oxidizing and then a reducing firing that achieved dull matte black designs in contrast to the lustrous black of the surface of the vase. This is the "black on black" pottery which is now produced exclusively by the entire San Ildefonso Pueblo.

[9] See note 1, I supra.

in the kiln might cause a cool area on the vase and prevent it from reaching the sintering temperature necessary for the formation of a permanent black oxide. The other, and rarer type of red area would have been produced when a section of a vase was overheated in the reoxidizing firing to the point that the black glaze reoxidized and lost its black color. This type of red area can be recognized by the presence of an iridescence over the black glaze on the rest of the vase. Occasionally, a glaze that had been applied too thin would show reddish streaks but such a thin glaze never could have produced the characteristic large red areas of a mishap in the kiln. Another defect sometimes occurred when a vase was painted with glaze matter from two batches having slightly different sintering points. A firing that reached the sintering temperature of one glaze batch but not the other resulted in a vase with well defined red or dull black areas which follow the outline of the drawing.

The basic technique of the black glaze process incorporating the three-step firing under oxidizing, reducing and reoxidizing conditions, was known in the Geometric and even in the Mycenaean period. Possibly the process was accidentally discovered when local clay was being purified. Clay, as it is dug in the pit, is almost always mixed with coarse sand, twigs, decaying vegetation, and other foreign matter. It is a simple procedure to create a suspension of clay in water and allow it to settle, separating the coarse particles and the unwanted matter from the clay. A peptizing agent such as potash, or water in which wood ashes have been soaked, might have been used to facilitate the process. It would have been good practice to coat a coarse clay vase body with a slip of a more purified clay to give it a smoother finish. The Greek kilns, fired with wood and easily capable of changing from an oxidizing to a reducing and back to a reoxidizing condition as wood was added, could accidentally have produced the first vase in this technique. An observant early potter who was willing to experiment might have worked out the process on a predictable basis.

Scenes on Greek vases of potters and painters at work, while rare, do exist and are useful in the study of vase-painting techniques.[10] The most representative scene extant of Attic vase-painters at work appears on a red-figured hydria (pl. 84, fig. 1) now in a private collection in Milan. This vase has often been described and illustrated.[11] Four painters are shown, a youth, two boys, and a woman. The two vase painters on the left side of the panel are each shown with two cups beside them containing the glaze matter which they paint on the vase. The boy on the right side of the panel has a single cup of glaze matter, and the glaze cup used by the woman is not visible as it is apparently on the other side of her body where it would be convenient to her right hand as she paints the vase. One of the two cups used by each of the two painters on the left side of the panel has a lid.

The reason for two vase-painters each having two cups of glaze would appear to be that they contain glazes of different consistency. One cup presumably contains thinner black glaze matter, the consistency of heavy cream, and the other cup contains a much thicker black glaze matter which is used to produce the Attic relief line. The cup containing the very thick glaze matter is the one that would require the lid to prevent further evaporation and caking.

An examination of Attic vases bears out this explanation. In examples where the black relief line goes over the black background glaze, the use of two glazes of different consistencies is clearly shown. Plate 85, fig. 2 shows such an example on a red-figured amphora by the Berlin Painter in The Metropolitan Museum of Art (acc. no. 56.171.38).[12] The relief lines forming the strings of the kithara stand out from the background glaze. We know that the background thin black glaze was applied with a brush because in certain cases the brush marks can be easily seen. In vase-paintings showing a painter at work, a brush is often shown grasped in the hand of the painter, as in fig. 1. Unfortunately the illustrations of vase painters at work show them drawing only decorative elements or filling in the solid background areas. On the hydria (fig. 1) two of the male vase painters are shown

[10] Excellent examples of representations of Greek potters and painters at work are given in Richter, *The Craft of Athenian Pottery* (1923).

[11] This vase has been illustrated several times since its first publication in 1876 (*Annali dell' Instituto* 1876, pl. D, E). The best description of this vase by the Leningrad Painter appears in "Potter and Painter in Ancient Athens" by J. D. Beazley, 97-99 (see note 1, D supra).

[12] This amphora by the Berlin Painter was formerly in the collection of William Randolph Hearst and was purchased by The Metropolitan Museum of Art, Fletcher Fund. Published: *BMMA* 15:7 (March 1957) by Dietrich von Bothmer, 165-80 and color cover; *Attic Red-figure Vase-painters* by J. D. Beazley (1942) 131, no. 3.

working on decorative patterns which were always done with a brush. The woman is shown painting the solid area between the handles of a volute krater with a brush, and the principal vase painter is poised with a brush about to begin a pattern on the lower part of the bowl of a large kantharos. All are shown with a brush, but none are shown doing figures or ornaments that would require the relief line.

There are no ancient illustrations of a vase-painter drawing a relief line. The nearest thing to the representation for which we are looking occurs on a red-figured kylix fragment in the Museum of Fine Arts in Boston (acc. no. 01.8073) (pl. 85, fig. 3).[13] In his right hand the painter is holding a brush and in his left a pointed instrument which has been identified in a variety of ways, among them, as a pointed stick with which the artist makes a preliminary sketch on the unfired clay body of the vase.

There have been several suggestions as to the identity of the instrument with which the Attic relief line was produced. Some suggestions have been a brush, a single long bristle, a feather, a reed, a quill, a metal pen, and the wooden equivalent of a modern drafting pen.[14] Heavy black glaze matter with sufficient consistency to stand up and form a three-dimensional line must be used. When the line dries it must retain its three-dimensional character and still adhere to the body of the vase, and it must survive the firing operation. The tool for producing the line has to be capable of drafting a long line without a break, in some instances well over six inches in length. The quantity of matter needed to achieve a continuous six inch relief line is considerable. The line, short or long, straight or curved, must be reasonably uniform from beginning to end and not vary appreciably in width or thickness. It has to be capable of being applied delicately enough to render eyes, nostrils, details of lips, teeth, etc., and it must also be able to be turned easily without smearing or changing in width. In my experiments, the instruments mentioned above did not meet these requirements. When the glaze matter was heavy enough to form the proper relief line it would not flow from any of them. In addition, many of them, such as the brushes which dragged along the surface, could not be used to make the abrupt turns necessary to duplicate the ancient effects.

A relief line similar to the ancient relief line can be produced by extruding the glaze from a small syringe in much the same way that a pastry chef decorates a cake by extruding the frosting from a pastry tube. In my experiments I used a small metal syringe, similar to a hypodermic syringe, on which I fitted a variety of drawn glass nozzles in order to regulate the thickness of the extruded line (pl. 86, fig. 4). The line thus produced occasionally dried with a slight trough, or long ridge, very much like those which sometimes occur in the Attic relief lines. When fired the line adheres to the body of the vase with great tenacity. If the line is subsequently mechanically broken, it takes with it a part of the clay body and leaves a groove in the vase; the same can be found on ancient vases.

The drawing instrument used by the Attic vase-painters, was probably composed of a tapered nozzle made of bronze, bone, or ivory pierced with a very fine hole (pl. 85, fig. 5). To this nozzle a short piece of animal intestine filled with the heavy viscous glaze matter must have been attached. The end of the intestine section, away from the nozzle, would have been tied so that it could be easily opened in order to add glaze matter as needed. The nozzle would have been held by the vase-painter in his fingers with the intestine tube section in the palm of the hand. The other fingers would have been used to gently press against this tube so as to force the extrusion of the glaze as required. I believe that the object held in the left hand of the vase-painter shown on the Boston kylix may be a representation of such a drawing instrument (pl. 85, fig. 3).

The Attic relief line continued to be used on Etruscan and South Italian vases, and many show a liberal use of it. Plate 85, fig. 6 is an enlarged detail of the hair of Telephos on an Apulian fragment where the extruded appearance is apparent.[15] Plate 86, fig. 7 shows a detail of a head which I drew, using the extruded line technique, based on a painting on a lekythos by the Painter of the Paris Gigantomachy (pl. 86, fig. 8).[16]

[13] *ARV* 231, no. 21, by the Antiphon Painter.

[14] See note 1, H supra. The wooden equivalent of a modern drafting pen as proposed by Winter will work for only short crude lines and does not reproduce the delicacy and length of the relief lines found on Attic vases.

[15] Fragment in the collection of the author.

[16] Vase in the collection of the author. Published: *Auction Sale XIV, Monnaies et Medailles*, June 19, 1954, p. 21, no. 77, ill. pl. 19.

In my experiments the relief line black glaze matter is thickened by allowing it to evaporate longer than that used for the background and decorative elements. To it I added liquid sugar in the form of honey or "Karo," a liquid sugar made from corn syrup. An addition of 10% by volume of honey increases the viscosity of the heavy glaze, and permits it to be extruded properly without drying too rapidly and without spreading on either side of the line on the surface of the vase. When the extruded relief line dries, the honey is tacky and adhesive, and prevents the glaze line from flaking off the vase body. The sugar vaporizes during firing.

Although the predominant colors of an Attic vase are the black glaze and the red clay body, the Greeks made use of a limited range of additional colors. One of these was an ochre wash used to heighten the color of the clay body. Attic clay by itself fires to a yellow-brownish-red but the vase-painters apparently wished to have a background of a richer, more contrasting color. I found that yellow ochre mixed in a thin solution with water duplicated the effect. In order to have the ochre wash adhere smoothly to the clay body it was desirable to add an emulsifier, such as soap, to the solution. Water, in which wood ashes have been soaked, is also satisfactory and could have been used in ancient times. This is similar to the peptizing agent discussed previously.

It is very important to burnish and polish the surface of the leather-hard clay vessel *before* the application of the yellow ochre. I use a rounded agate pebble which smooths and consolidates the surface. A very thin application of yellow ochre is applied with a wide brush and when it has dried, the surface is again burnished with an agate pebble. The iron oxide in the ochre burnishes to a very high luster. This burnishing is an essential step in yielding the final high quality lustrous black glaze.[17] After the black glaze matter has been applied over the burnished ochre wash and the black relief lines have been added, it is essential to polish the whole vase with a soft cloth before firing. This increases the luster of the black glaze both in the solid areas and in the relief lines.

The brown translucent line with which the Attic red-figure vase-painters drew muscles, hair, and other markings as well as shading, is produced by diluting with water the black glaze matter used for the backgrounds. This thin brownish glaze is very easy to use with a small brush. It is therefore perfectly proper to refer to this color, as Beazley and others have done, as dilute glaze. The same dilute brown glaze was also used on certain types of white-ground lekythoi.

The color scheme of Attic black-figured vases calls for the addition of a white color for women's faces, shield devices, clothes, furniture, and the like. Some of this white has survived to the present time, but it has often flaked or rubbed off and the only trace we have of it is the dulled area of the black glaze over which the white had originally been painted. This white was produced from a very fine white clay, which was a primary, or residual clay, a form of kaolin. It had only a very slight admixture of iron so it fired a relatively pure white with only a faint tone of yellow derived from the iron. The Greeks later refined this clay still further by sedimentation, thus controlling the yellowish cast. I was able to duplicate this added white by using native American ball clay but the results were too white so that I was forced to tone the clay with an addition of a scant quantity of red Attic clay.

This added white was applied with a brush, usually over the black glaze. In my tests I found that where it flakes off after firing, the black glaze underneath shows the dull surface characteristic of Attic black-figure. The same white slip was used on white-ground lekythoi and was applied with a brush while the vase rotated on a wheel. The surface could be burnished to a glossy white or left a matte white. This white-ground was an excellent drawing surface for both the black glaze line and the dilute brown glaze line.[18]

Occasionally added yellow was used, particularly

[17] The work of the Indian potter Maria Martinez at San Ildefonso Pueblo, New Mexico, showed me the principle of burnishing.

[18] The white-ground on lekythoi often had a creamy tone. This apparently was deliberate because added white used on the same lekythoi is whiter in shade, and chalky white contrasts with the creamy white-ground. In Attic black-figure, white usually was used to portray women's faces but when painting on white-ground vases this would not yield sufficient contrast, and therefore the women's faces were painted black. An example of this technique occurs on a vase in the collection of the author. Published: *Hesperia Art Bulletin*, No. 10 (September 1959) no. 237, ill. This vase is a small Attic black-figured hydria depicting on the white-ground panel Theseus killing the Minotaur. A woman painted in black-figure technique, but with the flesh left black, stands at either side. It is by the Painter of Vatican G49, attributed by Dietrich von Bothmer.

Occasionally vase-painters made experimental vases which do not correspond to the conventional techniques as herein discussed. One example is an amphora in the Louvre (F203) by the Andokides Painter, which depicts Amazons. To portray their flesh as white the painter coated the vase with a white back-

on black-figured skyphoi.[19] It is not a bright true yellow but instead is a beige or ivory tone distinctly different from added white. Both added yellow and added white have appeared on the same vase. The added yellow was made by adding 25% black glaze matter to the white slip. One would expect that the mixture would fire to a light gray shade but this is not the case; it assumes a slightly golden yellow tone.

If the percentage of black glaze matter is increased to 75-90% when mixed with white slip, a gray hue does appear. This color was used in ancient times as reported by Dietrich von Bothmer in *Amazons in Greek Art*.[20] "Another differentiation between the two Amazons is unique, and as far as I can see without parallel in Attic black-figure: the flesh of the dead Amazon is not white like that of her companion but an off-colour of grey—an unexpected touch of realism."

The other principal added color in black-figured vases was the added red used for men's beards, clothes, wreaths, fillets, sashes, blood, shield devices, etc. This is a red oxide of iron pigment which mixes with water and 10% black glaze matter as a binder, and is applied with a brush. Normally it is put over the black glaze. In its use for the tongue pattern on the neck of vases, or for spears and the like, the added red is applied directly on the clay body. It holds better on the black glaze than the white slip and does not flake readily. It does not hold so well on clay ground, nor on top of white.

Pink was occasionally employed; this was produced by mixing 25% added red in white slip.

The "Six technique," usually employed on small vases such as lekythoi, made use of the added white, yellow, pink and red. In this technique the picture is painted with a brush, applying the color to the surface of the vase which has been coated with the black glaze matter, and sometimes details are added by incision. The vase is then subjected to the usual Attic three-stage firing. This interesting technique is attractive and has a spontaneous quality but it is somewhat crude, lacking the refinement of the conventional black-figure or red-figure work.

In some Attic vases gold was used to add color and luster to the drawing. Gold leaf rather than mercury gilding was used. The gold leaf was applied over a relief form produced by extruding a plain clay slip from the same type of drawing syringe and it was used to create wings for Erotes, wreaths, garlands, necklaces, sceptres, kerykeia and the like.

The extruded clay relief form when dry is coated with white of egg to attach the thin gold leaf. The gold leaf is then pressed into place by means of a brush. A small pointed instrument is used to burnish the gold to the dry clay and the excess gold leaf is cut off and removed. It has been said that the gold leaf could not withstand the firing and therefore was applied to the vase after the firing,[21] but this is not so. The vases were fired below 945° C. whereas the melting point of gold is 1062° C. Therefore the gold leaf used in my experiments withstands the firing cycle and reproduces the effect on the Attic vases.

A special type of color was the sixth and fifth century B.C. intentional red glaze. It was mainly used for zones on kylikes. As mentioned above,[22] this was successfully reproduced by Marie Farnsworth and Harriet Wisely. In their experiments ochre was added to the black glaze matter so that the mixture turned red during the reoxidizing firing while preserving the shiny surface quality of the glaze. At the same time, adjoining areas in the conventional black glaze remained black. Apparently the ochre-containing glaze remains porous enough to reoxidize to red whereas the surrounding black areas are more compact and cannot be reoxidized at the same temperature.

All of the foregoing ancient colors underwent firing and were accomplished in a single firing cycle. There were, however, certain additional colors that the Greek vase-painters occasionally used which were not fired in the kiln. These fairly fugitive mineral or vegetable colors were painted after firing on some Attic white-ground lekythoi. They included shades of blue, green, yellow, pink, purple, and matte black. Today they are often either completely absent or have faded on vases, the action of sunlight, water in the soil, or burning on a funeral pyre probably having removed them. Dietrich von Bothmer has informed me of a cir-

ground and painted around the figures with black glaze on top of the white slip. *ARV* 2-3, no. 11; *Amazons in Greek Art* by Dietrich von Bothmer, p. 149, no. 34, pp. 153-54.

[19] "Krokotos and White Heron" by A. D. Ure, *JHS* 75 (1955) 90-103.

[20] *Amazons in Greek Art* by Dietrich von Bothmer (1957) 95, no. 59, discussed on p. 96, ill. pl. LXI, no. 3, Munich 2030 (a black-figured eye-cup).

[21] See note 1, E supra; p. 31.

[22] See note 1, G supra.

cumstance which proves that they were never fired in a kiln. Certain fragments were subjected to an oxidizing temperature of about 950° C. and the matte black pattern in the border of a white lekythos completely disappeared. The former presence of some of these fugitive colors can be detected by the dull empty square areas left in the meander pattern on some white-ground lekythoi. Occasionally figures appear naked while in the original state of the vase they were of course clothed. A white-ground lekythos which has been burned on a funeral pyre is dull gray in color. Burned vases, however, are sometimes refired in an oxidizing atmosphere by dealers and in museums to restore the original appearance. This is quite successful save that nothing can bring back the missing fugitive colors.

The relief line came into use during the middle period of Attic black-figure and was an integral part of the red-figure technique throughout its career. The incised line started early in Proto-Corinthian and was an integral part of Attic black-figure. In red-figure, however, the incised line, such as that for adding a contour to the hair, is found only in the archaic period.

The incised line was made before firing by the use of a pointed instrument. It is important that the clay body of the vase contain just the proper amount of moisture. If the vase is too damp the incising tool ploughs in too deeply, creating a furrow. If the vase is too dry, the incising flakes off the dry glaze matter along the edge. As explained above, it was customary to apply the added white over the black glaze. When the incision is made through the white slip, care must be taken so that the point penetrates the applied white and just faintly scratches the black glaze underneath. In this way the lines incised in the added white clearly reveal a black layer at the bottom of each groove. This results in greater contrast and clarity than when the incision accidentally penetrates both layers and reveals the red clay underneath.

The color plate shows samples I have reproduced both in the black-figure and in the red-figure technique. In each case duplicate specimens show pieces before and after firing. The upper pair is copied from a figure on an Attic black-figured amphora by the Goltyr Painter (pl. 87, fig. 9).[23] The lower pair is copied, using the extruded line technique, from the tondo of a red-figured kylix by the Villa Giulia Painter (pl. 86, fig. 10).[24]

In the black-figure pair, the difference in contrast before and after firing is particularly noticeable. When damp, the unfired black glaze matter is quite close in color to the background clay body, and it is difficult to see where one is painting under these conditions. Thus it is probable that the vase-painters of antiquity added some form of fugitive vegetable coloring to the black glaze matter in order to make it contrast with the clay at the time of painting. The upper pair show the use of the burnished yellow ochre wash background tone, and the black-figure brush painted technique, together with the added white and added red, both done with a brush, and the incision made with a sharp metal point.

The lower red-figure pair also show duplicate specimens before and after firing. The background tone was applied with a brush and the relief line was extruded by means of the drawing instrument. The white fillet and the body muscle lines of dilute brown glaze were added with a brush.

In summing up I now append an outline of the various steps involved from the clay pit to the finished conventional vase.

Steps in the Making of an Attic Vase

A. Digging the clay from the clay pit.
B. Washing the clay and allowing it to settle in large excavated pits used as settling basins to rid it of impurities.
C. Allowing the clay to age for six months and to "ripen" by mixing with it small quantities of older clay to increase bacterial action in the clay and to promote its working qualities.
D. Drying the clay to a workable consistency.
E. Wedging or working the clay to make it smooth and to eliminate air bubbles.
F. Forming the vase.
   1. By potter's wheel.
      a. The entire vase is thrown on a potter's wheel, or if it is too large to be formed in one operation, the vase is thrown in a series of sections and the sections are joined by wet clay slip.
      b. The vase, in a semi-dry condition, is again placed on the wheel and is turned while the

[23] Vase in the collection of the author. Published: *Auction Sale XVI, Monnaies et Medailles*, June 30, 1956, p. 24, no. 85, ill. pl. 18; *Amazons in Greek Art* by Dietrich von Bothmer (1957) 224; 12, 65 bis.

[24] Vase in the collection of the author. Published: *Hesperia Art Bulletin*, No. 1 (Spring 1957) no. 24, ill.

potter uses a metal tool to remove unwanted clay.
c. The vase is polished with a moistened cloth, leather, or sponge.
d. Handles and other adjuncts are attached.

2. By mold.
Plastic vases are partially produced on the potter's wheel, i.e. the mouth of the vase; the plastic parts are pressed in molds, and then joined, smoothed, and refined by hand.

G. Decorating the vase.
1. Black-figure technique.
a. Polish vase with burnisher.
b. Apply yellow ochre wash.
c. Burnish yellow ochre wash.
d. Preliminary sketch with pointed charcoal stick.
e. Paint the black-figured picture.
f. Apply added white.
g. Apply added red.
h. Incise lines.
i. Re-apply black or red on white.
j. Polish with soft cloth.

2. Red-figure technique.
a. Polish vase with burnisher.
b. Apply yellow ochre wash.
c. Burnish yellow ochre wash.
d. Preliminary sketch with pointed charcoal stick.
e. Outline figures with broad band of heavy glaze using brush ("quarter-inch" stripe).
f. Draw relief lines with drawing instrument.
g. Draw dilute brown lines with thin brush.
h. Fill in background working up to broad outline band.
i. Apply added white or red, or relief form, and then gold leaf.
j. Polish with soft cloth.

H. Firing.
1. Firing under oxidizing conditions up to 800° C.
2. Firing under reducing conditions with the addition of water vapor from 800° C. to 945° C. and then cooling to 875° C.
3. Reoxidization at 875° C.
4. Gradual cooling of the kiln under reoxidizing conditions before removing the finished vase.

THE METROPOLITAN MUSEUM OF ART

The Development of the Lion-Griffin

BERNARD GOLDMAN

PLATES 88-91

The griffin-protome cauldrons of Etruria, Greece and the Greek islands have recently come under close scrutiny in discussions of the orientalization of Western culture in the eighth and seventh centuries B.C. Scholars are unanimous in recognizing that these vessels have oriental affinities, although they differ on the location of the responsible workshops. Examination of the oriental forebearers of the cauldron griffin should aid in evaluating the extent and depth of orientalizing influences in the Mediterranean.

The question of workshops. In his excellent catalog of the griffin-protomes,[1] Ulf Jantzen discusses in detail the known examples of cauldron protomes in the Mediterranean, the techniques of manufacture, their sequence and dates, and their probable sources and distribution.[2] The emphasis that he placed on Samos (from where the greatest number of protomes had come) is now somewhat moderated by the increasing number of finds at Olympia, but this fact does not lessen the value of his work. Contained in his conclusions is the controversial hypothesis that the unadorned cauldrons were imported from the East and were afterwards decorated with the protome heads by Greek artists. To have the cauldrons and their protomes made separately by different shops in different lands would seem, at first glance, to be an unnecessary complication. But the Gordian knot that Jantzen tried to solve with this resolution is based on the fact that, while large cauldrons on stands are known in the East, the only protomes and protome decorated cauldrons yet to be found come from the Mediterranean. There are a few exceptions, but they hardly form the basis for a counter-argument. A fragmentary eagle-headed griffin-protome was found at Susa (*GG* no. 142), but it may very well be imported. An eagle-headed griffin in gold from the royal burial at Ziwiyeh, Kurdistan,[3] shows in slightly altered shape the major characteristics of the Western protomes.[4] Because it is shown in a *couchant* position, and is made of such soft metal, it is probably not a vessel protome at all.

Greek workshops for the protomes are supported by J. L. Benson. Against the argument that some of the protomes are oriental and some Greek-made (as the later ones, at least, are without question), he notes the ". . . logical, unbroken stylistic and typological development of the protomes. . . ."[5] He also draws particular attention to the wart-like protuberances between or slightly above the eyes on some of the griffin-protomes. "In general, however, oriental griffin representations seem to lack this feature—which is another argument for considering the bronze griffin protomes to be Greek."[6] G. M. A. Hanfmann, in his review of Jantzen's catalog, confirms one aspect of Jantzen's argument: "Jantzen takes the position that all cauldron griffins are Greek and I agree with him. The earliest griffin protomae are undoubtedly close to some Near Eastern model as yet unknown but they refuse to fall in with the style of any Near Eastern bronzes which we can cite as evidence at present."[7] But Hanfmann does not follow Jantzen's hypothesis that would have the cauldrons made in the East and the protomes made in the West; instead, he insists that both elements were fabricated in Greece at the same time, emphasizing that the technical problems involved make this the only sensible solution.

The contrary point of view, that the griffin and the cauldron ensemble is at first a Near Eastern product with later, local Western imitations, is also held. K. R. Maxwell-Hyslop suggests that ". . . there is considerable evidence which points to Urartu and that part of N. Syria which formed part of the Urartian empire before it was destroyed by Tiglathpileser III in 742 B.C., as the home of the Barberini and Bernardini [i.e. Etruscan] griffins and some of the earlier Greek examples. One would then

[1] *Griechische Greifenkessel* (Berlin 1955). Hereafter *GG* followed by catalog number.

[2] See also his preliminary study, "Die Bedeutung der Greifenprotomen aus dem Heraion von Samos," *Festschrift für Hans Jantzen* (Berlin 1951) 26-29.

[3] R. Ghirshman provides evidence that the so-called "Treasure" is actually a Scythian burial, *BibO* 15 (1958) 259.

[4] A. Godard, *Le trésor de Ziwiyè* (Haarlem 1950) fig. 30.

[5] Review of *GG*, *AJA* 61 (1957) 401-02.

[6] *loc.cit.*

[7] *Gnomon* 29 (1957) 245.

regard the later Etrurian examples, such as the cast griffins from Tarquinia, as copies made by competent local smiths in imitation of the earlier Vannic originals."[8] However, it need be remembered that those "Vannic originals" have yet to be found. We do have, to be sure, Urartian cauldrons with bull-head protomes, but nothing in the form or spirit of the eagle-headed griffins of the West.

P. Amandry, who has concerned himself with the oriental aspects of the Greek and Italian protome cauldrons in prior writings,[9] summarizes the latest arguments and provides strong evidence for the oriental manufacture of protomes and their cauldrons.[10] Particularly important is his discussion of the mastic found inside a protome from Olympia which, under analysis, shows connections with Mesopotamia rather than with Greece. The perplexing lack of tangible evidence in the East does not shake Amandry; he argues that, 1) the chances of excavation may still conceal Eastern examples of protome cauldrons, 2) many types of artwork are known first and best by their exported examples, and 3) the fragility of the protomes speaks for their being preserved only under the best of circumstances, as for example in the Etruscan tombs. It is true that this is an argument *ex silentio*, but still judicious. We may note that until just recently there was no evidence that Urartian bull-protome cauldrons were used in Phrygia, but there were good reasons for arguing that they should be, and probably would be discovered there. The finds at Gordion now establish the fact. On the other hand, of course, the appearance of these Urartian-type cauldrons at Gordion could also be used to argue that there, where circumstances for preservation were excellent, the griffin cauldron (the "Vannic original") is conspicuous by its absence.

One further suggestion may obtain: the presence of oriental craftsmen in the West who would be responsible for smithing orientalized bronzes. However, this hypothesis in itself would not help to explain the lack of Eastern cauldrons. One would still expect any supposed immigrant metalsmiths to have left behind in the Orient some evidence of griffin cauldrons made before their departure. And, certainly, all the cauldron-making smiths would not have left Western Asia in a single body.

If there is no clear-cut basis for deciding the question of manufacture, we can, at least, weigh the different arguments to establish a priority. Most difficult to accept is the theory that the cauldrons and their decorations were made separately in different countries. The thesis of Greek manufacture for all the griffin cauldrons is less improbable, but it leaves unexplained some major points: the distinctly oriental "Assur" clamps on some of the cauldrons, and the equally oriental conical stands. There is only one serious fault in the hypothesis that the protome cauldrons are composed of oriental imports and subsequent local copies; that is, the lack of prototypes in the East. But, in spite of this shortcoming, the oriental origin seems stronger than the first two arguments.

However, the last suggestion—that oriental craftsmen were at work in the West—is perhaps the best answer not *in spite of*, but *because* no griffin cauldrons have been found in the East. The following discussion will attempt to bring out the two-sided proposition that, while only oriental craftsmen could have made the griffin cauldrons at first, they produced them in a cultural milieu that was not Syrian, Assyrian, Hittite, Phoenician or Urartian. The protome cauldrons present an iconography whose elements are taken directly from the East, but they have been synthesized and added to in the West. Hence, griffin-protome cauldrons are not found in the Orient because the religious symbolism that they represent was a new, Western concretion distilled from a mixture of Eastern ideas. The Urartian and Phrygian bull-protome cauldrons are simple proof that the idea of the protome cauldron existed in and stemmed from the Orient. I would suggest that oriental craftsmen at work in Mediterranean lands had in mind protome vessels such as these, as well as their stock-in-trade of other oriental decorative forms, when they were commissioned to fabricate vessels in keeping with and as expressive symbolizations of oriental religious concepts that had been westernized.

This hypothesis would explain why the griffin cauldrons are distinctly oriental and yet not found in the Orient. It explains why the style of cauldrons

[8] "Urartian Bronzes in Etruscan Tombs," *Iraq* 18 (1956) 156.

[9] "Chaudrons à protomes de taureau en Orient et en Grèce," *The Aegean and the Near East* (New York 1956) 239-61. Prof. Amandry has kindly brought to my attention his other discussions: "Grèce et Orient," *Études d'archéologie classique* (Université de Nancy) 1 (1955-56) 7-9; "Art grec et arts du Proche-Orient au temps d'Homère," *L'Information d'histoire de l'art* 3 (1958) 1-11.

[10] "Objets orientaux en Grèce et en Italie aux viii[e] et vii[e] siècles avant J.-C.," *Syria* 35 (1958) 83-93.

continues with an unbroken development. It also explains, as the discussion that follows will document, why the griffin-protome of the cauldrons is similar to the Eastern griffin in all respects, but significantly altered by the addition of serpent characteristics that are not Western Asiatic. The later complete Hellenization of the griffin cauldrons can be seen as the result of Greek apprentices working in the oriental masters' shops. The oriental technique of using asphalt in the mastic of the protomes (27.6% asphalt in the example cited by Amandry[11]) would be continued by an oriental smith no matter where he located his shop; skilled craftsmen are noted for their conservatism in adopting new working techniques, tools and materials.

This argument would be vitiated if, in the future, identical griffin cauldrons are found in the East, and if they clearly antecede the Mediterranean examples. But, if they should be found to be coeval with the western models, they would only serve to strengthen the intimate bond between East and West that the presence of migrant oriental craftsmen would imply. Whether the griffin cauldrons were made on Asiatic, Etrurian or Greek soil is not, in itself, of great importance; but the implications of oriental artisans practicing their craft in the West must be basic to an understanding of the debt owed by Greek art to the East.[12]

Animal basis of griffin-protome. There is no question that the griffin sprang from the imaginative alchemy of the East, and we should look there for the animal basis of the eagle-headed griffins of the Mediterranean cauldrons. In spite of the lack of griffin-protomes, as such, in the Near East,[13] the stylistic origin of the cauldron protome can be delineated with some precision. We would expect, and it has usually been taken for granted, that the eagle-headed griffins which are abundantly represented in the East are the animal basis of the cauldron protomes. The oriental *eagle-headed griffin* is a composite animal: lion body and tail with bird-of-prey head, wings and (hind) claws. Instead, however, the protomes can be traced back to a different beast, the *lion-headed griffin*: a winged roaring lion with feathered tail and bird claws. These two mythological beasts should be kept separate, for they are clearly distinguishable in the old Orient. Point by point comparison between the protome-griffins and those of Western Asia reveals the relationship.

The chief characteristics of the cauldron griffins are: a) a long, sinuous neck covered with b) scaling, c) a squat head with short beak agape as if the beast were screaming, d) protruding tongue, e) bulging wide-open eyes, f) a top-knob between the brows, g) tall, erect ears, h) a heavy, ruff-like jowl, and i) one or two long tendrils that drop down on either side of the neck and in back (pl. 88, figs. 1, 2). As is to be expected in a large collection of objects, one or two features may be lacking in some examples without disrupting the homogeneity of the group. Some of the protomes lack the long tendril (*GG* no. 88) or add minor features, like the warts between the eyes (*GG* no. 14) or a small lock of hair dropping down the forehead (*GG* no. 32). These modifications have their obvious importance in establishing sequence, provenance and ateliers, elements carefully studied by Jantzen. In general, the earlier griffins are of stockier proportions and less sophisticated in the degree of abstraction than the later. But the feature that sets the tone of the griffin-protome—its screaming, agape beak—is its hallmark and is always present.

The eagle-headed griffin of the East does not explain these characteristic features. Frankfort documented, in his often cited study,[14] the thesis that Syria was the original home of the griffin, with subsequent local developments and adaptations in Egypt and the Minoan-Mycenaean world.[15] The eagle-headed griffin appears in Syria at least by the eighteenth century B.C., was picked up by the Mitannians and Assyrians in the second half of the second millennium, and in the first millennium became popular in almost all art-producing centers. The best, and almost sole source of information for

[11] *ibid.* 85-86.

[12] The migration of oriental smiths has been posited by several scholars, viz. G. M. A. Hanfmann, *Altetruskische Plastik* (Würzburg 1936) I, 13-14. R. D. Barnett has suggested that Northern (Urartian) metalsmiths may have fled to Etruria before the onslaughts of the Assyrians and Cimmerians: "The Excavations of the British Museum at Toprak Kale near Van," *Iraq* 12 (1950) 35. T. J. Dunbabin suggested that Phoenician craftsmen moved to Crete: *The Greeks and Their Eastern Neighbours* (London 1957) 41, 61.

[13] However, a stone griffin head on a short neck has been found: H. R. Hall, *Babylonian and Assyrian Sculpture in the British Museum* (Paris 1928) pl. lix, 3.

[14] "Notes on the Cretan Griffin," *BSA* 37 (1936-37) 106-22.

[15] Review of the various roles of the Egyptian and Aegean griffins: J. de Mot, "Vases égéens en forme d'animaux," *RA* 4th ser. 4 (1904) 202-04.

the earliest examples are the cylinder seals which, although they may distort or omit minor details, give a reasonable index to the representation of the griffin in ancient art. The first and most obvious characteristic of these early griffins is that they do not open their beaks. One of the earliest examples, on a sealing from Tall Chagar Bazar (Syria), has the closed beak, a long up-curling lock above its head, and rears up on its hind legs in one of the typical poses of the griffin.[16] In Mitannian sealings the crested eagle-headed griffin sits or rears up with closed beak.[17] In Middle Assyrian art (ca. 1400-1000 B.C.) the crested griffin stays on with either a closed beak or a slightly parted beak that reveals his tongue (pl. 88, fig. 3). Representations of griffin heads without bodies, carved in relief on Babylonian foundation stones, also show the closed mouth eagle-headed griffin.[18] At early Ras Shamra (Ugarit) the griffin maintains its silence also.[19] Nor do any of these examples of the eagle-headed griffin in the second millennium B.C. display the other typical features of the cauldron protomes. And one of the characteristic decorations of these eagle-griffins, the crest or cluster of head feathers, is lacking on the cauldron protomes. The long tendril that sometimes drops down the back of the cauldron griffin's neck (*GG* no. 9) is not the remnant of a crest, but rather it is clearly the back lock that is commonly represented in the East on profile figures.[20]

At the opening of the first millennium B.C. some of these traits of the cauldron griffin begin to appear. Although the griffin beak opens slightly, it is never agape. The eagle-headed griffin enters the lists of the animal-combat motif and is shown vigorously engaged in biting its opponent, but not charging it with beak wide open. Actually, the distended beak does not appear until after, as will be shown, the eagle-headed griffin has been crossed with the lion-headed griffin, and the screaming head is a result of this later mutation. At the beginning of the first millennium B.C., the crested griffin adopts the single or double long tendril that curls down the side of its neck. Its proliferation at the more coastal centers (viz. Megiddo, Enkomi, Byblos, Samaria, and in the Nimrud ivories and on the Phoenician bowls) may indicate that it was brought into Western Asia from the outside (pl. 88, fig. 4). However, the dropped tendril appears in Middle Assyrian art on eagle-headed demons (winged humans with crested bird-of-prey heads).[21] These demons have the tendrils falling down the back of the neck, rather than on the side, a derivation of the old Mesopotamian representation of human hair locks. The most elaborate development of these hair tendrils is reached in the elegant Mycenaean crested griffins.[22] Despite the fact that these Mycenaean griffins are not only a western extension of the Asiatic model but also return to the Near East, they do not form the basis for the later, western examples on the cauldrons.[23] The Mycenaean griffin has a short stout neck, narrow eyes, feathered crest and, when not in combat, a pacific, regal mien. Typically, its head is slightly elevated as if it were basking in the sun, or about to be petted. The cauldron griffin, on the contrary, rears back its head, providing the graceful S-curve of the neck. The tall ears, jowls, top-knob, curling tongue and bulging brows are lacking (pl. 89, fig. 5). In Egypt the griffin undergoes several internal changes, in addition to having a body more resembling the panther than the lion, but it also lacks the determining characteristics of the cauldron griffin.[24]

[16] M. E. L. Mallowan, "The Excavations at Tall Chagar Bazar," *Iraq* 4 (1937) pl. xii. Also E. Porada, "Syrian Seal Impressions on Tablets Dated in the Time of Hammurabi and Samsu-Iluna," *JNES* 16 (1957) fig. 2, pl. xxxi, 5. The long, up-curling lock that seems to be carried aloft in a breeze continues and becomes popular, attaching itself to human heads as well, as it moved into Greek art. Cf. Hittite stamp seals, G. Contenau, *La civilisation des Hittites et des Hurrites du Mitanni* (Paris 1948) fig. 36; sphinx head on a Greek alabastron found in Crete, H. Payne, "Archaeology in Greece," *JHS* 53 (1933) 292, fig. 17.

[17] H. Frankfort, *The Art and Architecture of the Ancient Orient* (Harmondsworth 1954) fig. 63; Frankfort, *Cylinder Seals* (London 1939) pl. xxxi, a (hereafter: *CylSeals*).

[18] Viz. foundation stone of King Melishipak II (1191-1171 B.C.) of Babylonia: W. Speiser, *Vorderasiatische Kunst* (Berlin 1952) pl. 70; or the ninth century B.C. relief of Nabu-apal-iddina: Hall *op.cit.* (supra n. 13) pl. ix 3.

[19] Frankfort, *Art and Architecture*. . . . (supra n. 17) pl. 146A.

[20] For example, on a Kirkuk sealing the triple crest is clearly defined and separate from the tendril that falls down the back of the griffin's neck. H. H. von der Osten, *Ancient Oriental Seals in the Collection of Mr. E. T. Newell* (1934) no. 288.

[21] E. Porada, *Corpus of Ancient Near Eastern Seals in North American Collections* (Washington 1948) I, no. 595 (hereafter: *Corpus* followed by catalog number).

[22] In addition to the monumental griffin in the throne room of Knossos, there are splendid examples on the ivory plaque of Mycenae (P. Demargne, *La Crète dédalique* [Paris 1947] fig. 24), and on the gold cylinder seal from Pylos ("A Royal Tomb of Homeric Times," *ILN* [12-5-53] fig. 7).

[23] Cf. P. Amandry, "Petits objets de Delphes," *BCH* 68-69 (1944-45) 71-72. The Mycenaean griffin: H. Kantor, *The Aegean and the Orient in the Second Millennium B.C.* (Bloomington 1947) 91-92.

[24] Cf. J. Leibovitch, "Le griffon dans le Moyen-Orient antique," *'Atiqot* 1 (1955) 75-88, fig. 2a etc. The later Egyptian

In the Neo-Assyrian sealings (ninth to seventh centuries B.C.) the crested eagle-headed griffin still appears with closed beak, without jowls or ears, etc. Even when in active combat, reared up on its hind legs to face the attacking king, it maintains its pacific countenance.[25] By contrast, the lion adversary of the king, in the identical situation, always has its jaws widespread in threatening manner (pl. 89, fig. 6). In later Assyrian art the ubiquitous "fertilizing genius" with eagle head has its beak only slightly parted, sufficiently to show its narrow bird's tongue. Hence, there is no reason to consider the eagle-headed griffins of the second and early first millennia B.C. in Assyria, or their sister beasts of Phoenicia, Egypt, Crete and Mycenae, as antecedents of the cauldron griffins. The eagle-headed griffins do not have the gaping jaws which are fundamental to the character of the cauldron griffins. They assume, in later and particularly in more westernly examples, the dropped tendril, but this is common to man and beast in Asia. Their eyes may be open or slit-like, but not bulging under heavy brows. The crest of the eagle-headed griffin is made up of several elements, plumes, feathers or a continuous row of feathering, but in any case it is far removed from the single standing top-knob.[26] The warts between the eyes are missing and the tongue usually does not appear except when the beak is slightly opened. The bulging jowl, tall ears and elongated neck are lacking. In late examples there is evidence of "scaling" on the neck, but most usual is some other kind of neck decoration: a scarf of feathers, bands or collars.

By contrast, in the lion-headed griffin of Asia we find the cauldron griffin type developing, and its complete fruition still on Asiatic soil. The wide-parted, distended jaws are characteristic of the Western Asiatic lion and lion-headed griffin. But by the Middle Assyrian period (i.e. beginning about the fourteenth century B.C.) the bellicose lion-headed griffin is well along the way toward assuming the other traits adopted by the cauldron griffin. First of all, the jaws of the lion head are portrayed in a "C" shape, the fangs becoming the closing arms of the "C" (pl. 89, fig. 7). As a result of the exaggerated, distended lower jaw, the jowl bulges out in an almost continuous frame of the muzzle (pl. 89, fig. 8). In most cases, the wide-open mouth presupposes that the tongue will be visible. Very early in its history the lion-headed griffin grows tall, alert ears rather than short, cat ears. The early representations seem very close to the ears of either the horse or the bull, but because these tall ears are frequently associated with figures that wear the bull-horn headdress, and because the horse has a very minor role in the early iconography, they probably may be considered as exaggerated bull ears. The association of lion and bull in the East, and the subsequent borrowing of features from each other, are quite common. For example, the bull is often represented reared up on its hind legs in feline manner, while the Assyrian lion-headed griffin sometimes is armed with long bull horns placed in front of his ears on his brow.[27] A sealing, probably from the time of Assurbanipal (discussed infra), shows a griffin with a heavy barrelled, bovine rather than leonine trunk as it rears up on its hind legs (pl. 89, fig. 9). In Achaemenian art the "bull dragon" completes the mixture: a lion head on a heavy bull body, bird hind legs and long horn substituted for the top-knob. The lion has the bulging brow which is further accentuated when the animal snarls, opening its jaws and exposing its fangs, and giving to his eyes the ferocious fixed stare. Further, as the representation of the lion head is stylized, the bulging jowls and tall ears are quite often joined into one continuous form, as in the cauldron griffin. Wart-like protuberances between the eyes are, of course, the natural property of the lion. The beast of pl. 89, fig. 10 provides a typical example of the Middle Assyrian winged and eagle footed lion, here rearing up against a horned hero or deity. It should be noted that the lion's neck has already been considerably lengthened, anticipating the long, curving shape to be found in the later protome heads.

How does this particular lion-headed griffin differ from the cauldron griffin? The scaling is

griffin: Kantor, *op.cit.* (supra n. 23) 75, note 97. Relationships between the Assyrian and Egyptian griffins: W. E. Staples, "An Inscribed Scaraboid from Megiddo," *OIC* 9 (1931) 51-61; this is prior to Frankfort's study and must be amended by Frankfort's observations.

[25] Also on Neo-Babylonian sealings (ca. 600 B.C.): *CylSeals* xxxvi, f.

[26] For the crested griffin in combat on ivories from Delos: H. Gallet de Santerre and J. Tréheux, "Rapport sur le dépôt égéen et géométrique de l'Artémision à Délos," *BCH* 71-72 (1947-48) 175-178, pls. xxvii, 3; xxix, 7.

[27] G. A. Eisen, *Ancient Oriental Cylinder and Other Seals*, *OIP* 47 (1940) no. 90.

missing, but other Middle Assyrian griffins of identical type have their necks covered with feathering.[28] The dropped tendril does not yet appear, but there is more than a hint of the curve it will ultimately take in the "S"-shaped sweep of the ruff on the lion's neck. The top-knob on the brow is missing in this example; however, it does appear in many representations. It has been suggested that the top-knob (pl. 90, fig. 11) may have derived from the lock of hair that curls up over the forehead on some griffins, and that its form was significantly altered in order to translate the two-dimensional representation of hair curl into a three-dimensional casting.[29] However, the top-knob on the cauldron griffin is a straight-forward carryover from its oriental counterpart. Even though the sealing from Nimrud is somewhat indistinct, it shows at this early date a vertical knob above the eyes that is independent of the hair curls (pl. 89, fig. 9). More common in the representations of the Middle Assyrian lion-headed griffins is a three or five petaled bud on the brow (pl. 89, figs. 6, 8).[30] The motif appears on a Lydian coin and is used in Achaemenian art.[31] And, lastly, the most significant difference between the lion-head griffin and that of the cauldrons is that in one case we are dealing with a lion head while in the other the head is clearly that of a beaked animal.

Writers are sometimes, perhaps, a bit too prone to explain away drastic differences in proposed variations of a single motif by assuming that the artisans confused and substituted parts of one motif for another, or copied inaccurately without recognizing the significance of the original motif. Yet, in the case of the lion-headed griffin, where to begin with there is a mixture of lion and bird body parts, the transformation of the beast, deliberate or accidental, can be observed. Some of the representations on the sealings of the Middle Assyrian period, that are characterized by a more linear technique of stone cutting, portray the lion head in an ambiguous manner. One would be tempted to identify the griffin of pl. 89, fig. 7 as an eagle-headed griffin, except that the tall bull-like ears which are not the property of the eagle-headed beast make clear that the artist still had the lion head in mind. Even in Old Babylonian sealings, the open-jawed lion is sometimes portrayed with sharp, linear muzzle.[33] The bull-lion griffin from Nimrud (pl. 89, fig. 9) shows the same deliberate continuation of the ambiguous muzzle-beak. In Neo-Assyrian art the upper jaw of the muzzle curves higher and higher, rendering the counterpart of the humped upper beak of the cauldron griffin.[33] The Luristan lion-headed griffins, descended from the Assyrian and perhaps Mitannian animals, show how far this stylization can go in approaching the beak of a bird (pl. 90, fig. 12). A lion-headed griffin protome head carved on a Cassite foundation stone illustrates a similar bird form (pl. 90, fig. 13). Not only can this transformation from lion into eagle head be watched in Neo-Assyrian times, but also the completed type can be found. An Assyrian seal, for example, of the late ninth or early eighth century B.C. carries a beast whose head must be seen as the immediate forebearer of the cauldron griffin (pl. 90, fig. 14). The animal's body is leonine, but with a scorpion tail. The artist, with admirable skill, has handled the simple drill marks of which the feet are composed in such a manner as to indicate clearly that the hind legs end in claws (i.e. that this is a griffin and not simply a lion) while the forepaws are those of the cat. The head with the bulging brow and upper jaw is the bird-of-prey type; the short ears are alert and the floral bud above the brow has assumed the top-knot form exactly as it appears on the cauldron griffins. The tendrils are there, although not clear in the miniature work. If there were any suspicion, despite the other evidence, that this beast may have descended from the eagle-headed griffin, rather than from the lion-headed griffin, it is dispelled by the "fire" pouring out of its mouth. For this beast, who carries a god upon his back, is iconographically a continuation of the old fire vomiting, shaggy lion-griffin vehicle of the gods (pl. 90, fig. 15).[34] It is instructive to note that the floral top-knob was not simply misunderstood in the West and completely transformed into the ball on a knob form. A cauldron protome from Samos demonstrates the continuation of the trilobate element (pl. 90, fig. 16).

In the eighth century B.C., in the East, the transformed lion's head becomes popular; that is, it settles down as a full-fledged open-beaked head.

[28] *Corpus* 598.

[29] Benson *op.cit.* (supra n. 5) 401.

[30] Also C. J. Gadd, "The Southesk Collection of Cylinder Seals," *BMQ* 15 (1941-50) 60-61, no. 129572.

[31] A. Roes, "The Trefoil as a Sacred Emblem," *Artibus Asiae* 17 (1954) figs. 1, 9.

[32] *Corpus* 364.

[33] *Corpus* 689.

[34] Also *CylSeals* xxii, a,c and xxvii, i.

Traits of the old eagle-headed griffin are by now frequently amalgamated with the new type. The new form is particularly popular in the monuments of northwestern Asia and, for this reason among others, the origins of the protome cauldrons have been sought in the north of what is now Armenia. At Toprak-Kale, near Lake Van, the human-bodied demons have open-beaked bird heads with up-curling tongues and long tendrils. At Carchemish the human-bodied demons carry the bull ears but otherwise follow in the line of the eagle-headed griffins. The crested eagle-headed griffins on the Tall Halaf orthostat blocks, true to their provincial art status, also follow the older eagle-headed griffin tradition more closely.[35] Phrygian art of the second half of the eighth century B.C., as represented by the griffin slab of Ankara,[36] shows one adaptation of the new type: the walking winged lion has the cat tail rather than a feathered bird tail, his chest is feathered but his neck is plain, he has a mane-like crest with tall ears and dropped tendril, his mouth is wide open with tongue showing and eyes glaring out from under a bulging brow. Some painted griffins in the Late Phrygian style, from Pazarlı (first half of the seventh century B.C.) demonstrate the later continuation (pl. 90, figs. 17, 18).

The cauldron protome griffins, then, are not a direct continuation of the crested eagle-headed griffin that has such currency in the Near East and in the eastern Mediterranean. All of their basic characteristics are found in the lion-headed griffin of Assyria. Even the final stage of the conversion of the lion head into an eagle head is not an innovation of the cauldron griffin masters, but was already arrived at in Assyrian art at least by the beginning of the eighth century B.C. and probably before. By Middle Assyrian times all the necessary traits (except perhaps the tendril which, however, is well known then) are present in the lion-headed griffin to effect the transformation. This griffin, which is carried over to the West in the cauldrons, also survived as a distinct oriental importation in Greek Corinthian ware without any substantial changes (pl. 91, fig. 19). The metalsmiths, as mentioned previously, did make their unique contributions; although the alterations on the Asiatic lion-eagle griffin are minor, they are significant. We must ask why the griffin in particular came to be associated with the cauldron, instead of the bull who comes with the Urartian cauldrons. And we must be concerned with the deliberate elongation of the lion neck until it obtained a serpentine form. That the cauldron metalsmiths had the serpent in the back of their minds is substantiated by their changing the lattice-work of feathering, worn by the lion griffins, into scales. Confirming this new animal involvement are protomes from cauldrons that have completely gone over to the snake form (*GG* nos. BB 737 and B 339).

The zoomorphic basis for protome cauldrons. More speculative than the tracing of the origin of griffin heads is the examination of possible origins for the protome cauldrons. The structural basis for the protome cauldron—a vessel with attached heads—seems to be rooted in the zoomorphic vessel, and it is this aspect of the vessel that is of interest here. However, the late development of a zoomorphic vessel in Greek and Etruscan art, particularly in light of the new serpentine interpretation of the griffins, indicates that the old zoomorphic form was imbued with a new symbolic meaning wherein the head and body of the animal were translated into a union of two symbols depicted by the globular shape of the vessel and the serpentine animals rising from its shoulders. Definition of this latter aspect of the protome cauldrons, which is a part of the total iconography of Greek and Etruscan art in the eighth and seventh centuries B.C., goes beyond the limits of this paper. Clark Hopkins explains these significant symbols elsewhere in this issue.[37]

A seventh century B.C. Cycladic jug, from Aegina and now in the British Museum, is distinguished by having the neck and spout converted into the cauldron-type griffin. From the ovoid belly of the vessel rises the neck decorated with a dot-in-circle pattern, a half band of twisted rope design, a scale pattern on the "throat" and tendrils that drop down on either side of the neck and back. The gaping beak of the griffin forms the spout (pl. 91, fig. 20). Clearly this is not just a vessel decorated with a griffin head, but rather it is in the very ancient tradition of vessels in the shape of birds and animals. A few early examples of the zoomorphic vase may be noted to establish the zoomorphic tra-

[35] Viz. M. Vieyra, *Hittite Art* (London 1955) pl. 94.

[36] R. D. Barnett, "Early Greek and Oriental Ivories," *JHS* 68 (1948) 9-10.

[37] I am greatly indebted to Prof. Hopkins for frequent opportunities to discuss this matter with him and to profit by his insight.

missing, but other Middle Assyrian griffins of identical type have their necks covered with feathering.[28] The dropped tendril does not yet appear, but there is more than a hint of the curve it will ultimately take in the "S"-shaped sweep of the ruff on the lion's neck. The top-knob on the brow is missing in this example; however, it does appear in many representations. It has been suggested that the top-knob (pl. 90, fig. 11) may have derived from the lock of hair that curls up over the forehead on some griffins, and that its form was significantly altered in order to translate the two-dimensional representation of hair curl into a three-dimensional casting.[29] However, the top-knob on the cauldron griffin is a straight-forward carryover from its oriental counterpart. Even though the sealing from Nimrud is somewhat indistinct, it shows at this early date a vertical knob above the eyes that is independent of the hair curls (pl. 89, fig. 9). More common in the representations of the Middle Assyrian lion-headed griffins is a three or five petaled bud on the brow (pl. 89, figs. 6, 8).[30] The motif appears on a Lydian coin and is used in Achaemenian art.[31] And, lastly, the most significant difference between the lion-head griffin and that of the cauldrons is that in one case we are dealing with a lion head while in the other the head is clearly that of a beaked animal.

Writers are sometimes, perhaps, a bit too prone to explain away drastic differences in proposed variations of a single motif by assuming that the artisans confused and substituted parts of one motif for another, or copied inaccurately without recognizing the significance of the original motif. Yet, in the case of the lion-headed griffin, where to begin with there is a mixture of lion and bird body parts, the transformation of the beast, deliberate or accidental, can be observed. Some of the representations on the sealings of the Middle Assyrian period, that are characterized by a more linear technique of stone cutting, portray the lion head in an ambiguous manner. One would be tempted to identify the griffin of pl. 89, fig. 7 as an eagle-headed griffin, except that the tall bull-like ears which are not the property of the eagle-headed beast make clear that the artist still had the lion head in mind. Even in Old Babylonian sealings, the open-jawed lion is sometimes portrayed with sharp, linear muzzle.[32] The bull-lion griffin from Nimrud (pl. 89, fig. 9) shows the same deliberate continuation of the ambiguous muzzle-beak. In Neo-Assyrian art the upper jaw of the muzzle curves higher and higher, rendering the counterpart of the humped upper beak of the cauldron griffin.[33] The Luristan lion-headed griffins, descended from the Assyrian and perhaps Mitannian animals, show how far this stylization can go in approaching the beak of a bird (pl. 90, fig. 12). A lion-headed griffin protome head carved on a Cassite foundation stone illustrates a similar bird form (pl. 90, fig. 13). Not only can this transformation from lion into eagle head be watched in Neo-Assyrian times, but also the completed type can be found. An Assyrian seal, for example, of the late ninth or early eighth century B.C. carries a beast whose head must be seen as the immediate forebearer of the cauldron griffin (pl. 90, fig. 14). The animal's body is leonine, but with a scorpion tail. The artist, with admirable skill, has handled the simple drill marks of which the feet are composed in such a manner as to indicate clearly that the hind legs end in claws (i.e. that this is a griffin and not simply a lion) while the forepaws are those of the cat. The head with the bulging brow and upper jaw is the bird-of-prey type; the short ears are alert and the floral bud above the brow has assumed the top-knot form exactly as it appears on the cauldron griffins. The tendrils are there, although not clear in the miniature work. If there were any suspicion, despite the other evidence, that this beast may have descended from the eagle-headed griffin, rather than from the lion-headed griffin, it is dispelled by the "fire" pouring out of its mouth. For this beast, who carries a god upon his back, is iconographically a continuation of the old fire vomiting, shaggy lion-griffin vehicle of the gods (pl. 90, fig. 15).[34] It is instructive to note that the floral top-knob was not simply misunderstood in the West and completely transformed into the ball on a knob form. A cauldron protome from Samos demonstrates the continuation of the trilobate element (pl. 90, fig. 16).

In the eighth century B.C., in the East, the transformed lion's head becomes popular; that is, it settles down as a full-fledged open-beaked head.

[28] *Corpus* 598.

[29] Benson *op.cit.* (supra n. 5) 401.

[30] Also C. J. Gadd, "The Southesk Collection of Cylinder Seals," *BMQ* 15 (1941-50) 60-61, no. 129572.

[31] A. Roes, "The Trefoil as a Sacred Emblem," *Artibus Asiae* 17 (1954) figs. 1, 9.

[32] *Corpus* 364. [33] *Corpus* 689.

[34] Also *CylSeals* xxii, a,c and xxvii, i.

Traits of the old eagle-headed griffin are by now frequently amalgamated with the new type. The new form is particularly popular in the monuments of northwestern Asia and, for this reason among others, the origins of the protome cauldrons have been sought in the north of what is now Armenia. At Toprak-Kale, near Lake Van, the human-bodied demons have open-beaked bird heads with up-curling tongues and long tendrils. At Carchemish the human-bodied demons carry the bull ears but otherwise follow in the line of the eagle-headed griffins. The crested eagle-headed griffins on the Tall Halaf orthostat blocks, true to their provincial art status, also follow the older eagle-headed griffin tradition more closely.[35] Phrygian art of the second half of the eighth century B.C., as represented by the griffin slab of Ankara,[36] shows one adaptation of the new type: the walking winged lion has the cat tail rather than a feathered bird tail, his chest is feathered but his neck is plain, he has a mane-like crest with tall ears and dropped tendril, his mouth is wide open with tongue showing and eyes glaring out from under a bulging brow. Some painted griffins in the Late Phrygian style, from Pazarlı (first half of the seventh century B.C.) demonstrate the later continuation (pl. 90, figs. 17, 18).

The cauldron protome griffins, then, are not a direct continuation of the crested eagle-headed griffin that has such currency in the Near East and in the eastern Mediterranean. All of their basic characteristics are found in the lion-headed griffin of Assyria. Even the final stage of the conversion of the lion head into an eagle head is not an innovation of the cauldron griffin masters, but was already arrived at in Assyrian art at least by the beginning of the eighth century B.C. and probably before. By Middle Assyrian times all the necessary traits (except perhaps the tendril which, however, is well known then) are present in the lion-headed griffin to effect the transformation. This griffin, which is carried over to the West in the cauldrons, also survived as a distinct oriental importation in Greek Corinthian ware without any substantial changes (pl. 91, fig. 19). The metalsmiths, as mentioned previously, did make their unique contributions; although the alterations on the Asiatic lion-eagle griffin are minor, they are significant. We must ask why the griffin in particular came to be associated with the cauldron, instead of the bull who comes with the Urartian cauldrons. And we must be concerned with the deliberate elongation of the lion neck until it obtained a serpentine form. That the cauldron metalsmiths had the serpent in the back of their minds is substantiated by their changing the lattice-work of feathering, worn by the lion griffins, into scales. Confirming this new animal involvement are protomes from cauldrons that have completely gone over to the snake form (*GG* nos. BB 737 and B 339).

The zoomorphic basis for protome cauldrons. More speculative than the tracing of the origin of griffin heads is the examination of possible origins for the protome cauldrons. The structural basis for the protome cauldron—a vessel with attached heads—seems to be rooted in the zoomorphic vessel, and it is this aspect of the vessel that is of interest here. However, the late development of a zoomorphic vessel in Greek and Etruscan art, particularly in light of the new serpentine interpretation of the griffins, indicates that the old zoomorphic form was imbued with a new symbolic meaning wherein the head and body of the animal were translated into a union of two symbols depicted by the globular shape of the vessel and the serpentine animals rising from its shoulders. Definition of this latter aspect of the protome cauldrons, which is a part of the total iconography of Greek and Etruscan art in the eighth and seventh centuries B.C., goes beyond the limits of this paper. Clark Hopkins explains these significant symbols elsewhere in this issue.[37]

A seventh century B.C. Cycladic jug, from Aegina and now in the British Museum, is distinguished by having the neck and spout converted into the cauldron-type griffin. From the ovoid belly of the vessel rises the neck decorated with a dot-in-circle pattern, a half band of twisted rope design, a scale pattern on the "throat" and tendrils that drop down on either side of the neck and back. The gaping beak of the griffin forms the spout (pl. 91, fig. 20). Clearly this is not just a vessel decorated with a griffin head, but rather it is in the very ancient tradition of vessels in the shape of birds and animals. A few early examples of the zoomorphic vase may be noted to establish the zoomorphic tra-

[35] Viz. M. Vieyra, *Hittite Art* (London 1955) pl. 94.

[36] R. D. Barnett, "Early Greek and Oriental Ivories," *JHS* 68 (1948) 9-10.

[37] I am greatly indebted to Prof. Hopkins for frequent opportunities to discuss this matter with him and to profit by his insight.

dition within which this jug falls. A vase from Khafaje has an ovoid body mounted on a conical stand with bird head, tail and wings modeled in the clay.[38] A delightful bird jug from Til-Barsib (Borsippa) is based on the rooster, carrying the cock's head as the spout and his legs, toes and sharp spurs modeled in relief on the bulging sides.[39] A different interpretation of the zoomorphic vessel is illustrated by a stone bowl from Susa that has a plastic ram's head with long curling horns extending from the side of the bowl. The sides themselves are carved in shallow relief to depict the ram's body that lies on folded legs.[40]

More important for their relation with the protome cauldrons are the several examples offered in the East of the vessel that served as a common body for a number of animals. A bronze vase from Susa has two registers of animals raised in relief on the walls; the lower register shows four walking horses in profile but with their heads turned out at a right angle to the vessel wall, and thus disengaged from it, fully modeled in the round. The upper register is similarly worked in terms of four kneeling cows with heads extended in protome.[41] A fragment of a stone vase in the Louvre shows the same pattern: a double register of walking lions and bulls, bodies carved in profile relief, heads turned out.[42] Conical cups, vases and even mace heads are made in this manner in Babylonia and Assyria.[43] A continuation of this tradition is a gold goblet, from Kalar-Dasht, and now in the Tehran Archaeological Museum (pl. 91, fig. 21). It seems most likely that we have in these vessels the physical type on which the protome cauldrons were based.

The griffin-protome cauldrons are not, however, products of a like phase of fairly naturalistic art; they belong to a late, highly sophisticated abstract phase of ancient Eastern art. We may suspect that, as frequently happens at the end of an art cycle, only the significant elements of the composition remain while the naturalistic details are refined out of existence. Thus, the smiths of the cauldrons only concerned themselves with the powerful heads of beasts, eliminating the accessory details of bodies and legs. And, as mentioned above, the transformation of the griffins into serpents with griffin heads, in line with a new symbolism, also destroyed the animal aspect of the cauldron. Fortunately, the intermediate step—between having the animal bodies depicted on the side with their protome heads in the round, and having just the protome heads—can be illustrated by a ceramic griffin-protome vessel. The seventh century potter of this cauldron from Arkades, Greece, compromised the relief modeling of the Eastern type by painting the griffins' bodies (in this case bird bodies) with spread wings on the side of the vessel and then modeling the eagle-griffin heads in the round in typical protome style.[44] This example is too late to be an antecedent of the protome cauldrons, but it would seem safe to guess that it is based on the earlier Eastern form.[45] It is fruitless to conjecture whether the immediate prototypes of the cauldron protomes, before they were associated with the snake, had bird or lion bodies. The lion bodied griffin, which is the basis for the head, was most usual in the East, but as far back as Post-Akkadian times (end of the third millennium B.C.) the eagle appeared with a roaring lion's head.[46] It is possible that the lion-headed griffin developed out of the very old lion-headed eagle motif. At any rate, the griffin-headed bird appears in the orientalizing phase of seventh century B.C. Greek art.[47]

No better illustration of the loss of the zoomorphic tradition in the cauldrons need be cited than the "Phoenician" bowl from the Bernardini Tomb, which clearly shows that the protome heads of serpents were added to it as an afterthought.[48] But if the tradition of the zoomorphic vessel disappeared, we are justified in suspecting that it was not an accident, but that it was forcibly displaced by a developing iconography of serpent and bowl that took over this vessel type, enlivening it with a new meaning.

If the cauldron griffins are based on the lion-headed griffin, does it then follow that lion-protome

[38] H. Frankfort, *Tell Asmar and Khafaje*, *OIC* 20 (1936) fig. 55.

[39] F. Thureau-Dangin and M. Dunand, *Til-Barsib* (Paris 1936) pl. xxvii, 12.

[40] G. Contenau, *Manuel d'archéologie orientale* (Paris 1931) II, 807, fig. 564.

[41] *ibid.* II, 914, fig. 632. [42] *ibid.* IV, fig. 1078.

[43] Viz. Hall, *op.cit.* (supra n. 13) pl. ii.

[44] R. D. Barnett, "Ancient Oriental Influences on Archaic Greece," *The Aegean. . . .* (supra n. 9) pl. xx. A very similar triple-headed vase: Amandry, "Grèce et Orient" (supra n. 9) pl. v, 5.

[45] The Etruscans used the ceramic protome vessel also, as is demonstrated by a large, unpainted red-ware vessel in the Louvre.

[46] *Corpus* 267.

[47] For example, on a stamp seal from Perachora: Barnett, *op.cit.* (supra n. 36) pl. iv, f.

[48] C. D. Curtis, "The Bernardini Tomb," *MAAR* 3 (1919) 34, 37, pl. 12.

cauldrons preceded the eagle-headed variety? Etruria has yielded a lion-headed protome cauldron (*GG* pl. 9, 1) as well as a cauldron with alternating lion and eagle heads.[49] We have cited the gold goblet from Kalar-Dasht which had lion-protome heads (pl. 91, fig. 21). And it is notable that when a Luristan vessel appears in the Mediterranean (Samos) it belongs to a type that sometimes carries lion protome heads.[50] However, these are merely interesting indications which, in the absence of Eastern protome cauldrons as such, do not answer the question of priority.

The role of the griffin. The bird-of-prey griffin of Egyptian art appears as defender of the king whose enemies he destroys.[51] One of his names describes his warlike role: *tštš*, to tear, to render, to crush. Another name for the Egyptian griffin (*šfr*) may connect him with the shepherd, one who guards the land against its enemies; a third name (*ḫḫ*) is the "swift-one," as he is often represented in pursuit of the foe. In Western Asia the griffin plays many roles. It appears very early in close association with the "sacred tree,"[52] and continues to take part in the ritual throughout its history. It closes in battle with warrior kings and with other animals; it hunts and attacks; it sits or lies *couchant* in a guardian attitude.[53] Its iconography is further complicated by the fact that the Egyptian and Minoan-Mycenaean versions of the griffin are re-imported by Asia, and they must carry back with them some of the symbolic meanings they held in the other lands. The lion-headed griffin also serves in several roles: he fights beasts, kings and deities; he is a vehicle for gods and goddesses or is yoked to their chariots; he devours human and animal opponents; he supports totemic columns and flanks the "sacred tree"; he flees before the onslaught of armed warrior gods.

Although the open-beaked griffin does not descend from the eagle-headed griffin, we may assume that not only its physical characteristics but also its symbolic meaning combines characteristics of the lion and eagle-headed types (viz. eighth century B.C. examples from Karmir Blur, Toprak-Kale, Carchemish, etc.). In the later representations and descriptive literature, the griffin becomes firmly associated with solar symbolism. The gold-digging griffin of which Philostratus writes had its home in India and was "held in veneration as being sacred to the sun" (*Life of Apollonius* 3.48). Teams of griffins drew the sun chariots of Helios, of his Syrian counterpart Malachbel, and of Apollo.[54] The lion, who is also transformed into a protome on the cauldrons, was associated with the sun-god Shamash; and the serpent, another cauldron protome, has its solar meaning in the Egyptian Uraeus.

Among the Syrian tribute brought to Egypt is a vessel with serpent heads lining the rim, and a vase with protome serpents who bear on their heads the sun disk, an obvious variation on the Uraeus motif (pl. 91, fig. 22).[55] At Toprak-Kalah and Carchemish the human-bodied, lion-eagle genius holds his arms above his head as a bearer, while at Kara Tepe the same genius in this pose supports the sun-disk (pl. 91, fig. 23). The bull-men with the tall ears (Tall Halaf) also support the winged sun-disk.[56]

The griffin is a prominent actor in the cosmological scenes of the cylinder seals. For example, a god armed with a star-studded bow pursues the lion-headed griffin who turns back to spit fire at his oppressor; the winged solar-disk[57] rides in the

[49] H. Mühlestein, *Die Kunst der Etrusker* (Berlin 1929) pl. 100.

[50] B. Goldman, "Luristan Pitchers," *Artibus Asiae* 20 (1957) fig. 24.

[51] Summary of the literary evidence: Leibovitch, *op.cit.* (supra n. 24) 75-80; R. D. Barnett, *The Nimrud Ivories* (London 1957) 74-75.

[52] For the ritual of the "sacred tree": N. Perrot, *Les représentations de l'arbre sacré sur les monuments de Mesopotamie et d'Elam* (Paris 1937). The mythological and cosmological aspects of the tree as *Lebensbaum*, *Weltenbaum*, *Sagenbaum*, etc.: U. Holmberg, "Der Baum des Lebens," *AnnAcFenn* Ser. B. 16 (1923) 1-157

[53] The *couchant* griffin may be a symbol of death as, later, he has to do with ferrying the souls of the dead: Frankfort, *Art and Arch.* . . . (supra n. 17) 154.

[54] Sun-chariots are reviewed in: H. P. l'Orange, *Studies on the Iconography of Cosmic Kingship in the Ancient World* (Oslo 1953) 67-68.

[55] H. T. Bossert, *Altsyrien* (Tübingen 1951) no. 457 also.

[56] The bull along with the lion was sacred to Shamash. Hence it is important to note that the bull protomes on the cauldrons of Urartu rest on the winged and tailed form of the sun-god, affirming their connection with the solar deity. Cf. R. D. Barnett and W. Watson, "Russian Excavations in Armenia," *Iraq* 14 (1952) fig. 8; A. Perkins, "Archaeological News," *AJA* 54 (1950) 70; Barnett, "The Finds of Urartian Bronzes at Altin Tepe, Near Erzincan," *AnatSt* 3 (1953) pls. xii, xiv.

[57] For the winged solar-disk in Egypt and Assyria: B. Pering, "Die geflügelte Scheibe in Assyrien," *AOF* 8 (1933) 281-296. For an Egyptian origin of the winged sun-disk: M. Holleaux, "Fouilles au temple d'Apollon Ptoos," *BCH* 12 (1888) 395. For the parallel development in both Western Asia and Egypt of the winged sun-disk: F. F. Lehmann-Haupt, "Materialien zur älteren Geschichte Armeniens und Mesopo-

"heavens" beside him.[58] He is the vehicle of the goddess resplendent in a nimbus of stars.[59] He appears with the weather god and is a vehicle of Adad who carries either the axe or forked lightning.[60] In suggesting the early solar association of the griffin, Barnett points out that the Egyptian name for the griffin ". . . represents the Canaanite-Hebrew root שרם, 'to burn,' corresponding to Akkadian *šarâpu*. The griffin is in fact a *seraph*, a 'burning creature'. . . ." Hence, the name of "burner" would well account for its connection with the solar deity, he suggests.[61] And, we may add, what would be more appropriate for a "burner," the solar symbol, than that it should be portrayed vomiting fire; for the rising of the sun, says a hymn to Shamash, "is a flaming fire."[62] Perhaps the representation of the storm god, armed with lightning fork and thunder axe, pursuing the fire-vomiting griffin, relates the nature drama of the storm with its life-giving rains putting to flight the savage sun that burns with its flaming breath. Such a mystery play would be deeply meaningful to early man at the mercy of the desert sun. Some of the most touching lines in ancient Eastern literature reflect the fear of drought, the victory of the sun over the storm.

Above Adad made scarce his rain,
Below was dammed up the flood,
So that it rose not from the source.
The land withdrew its yield,
It turned the breast of Nisaba.[63]
During the nights the fields turned white.
The broad plain brought forth salt crystals,
So that no plant came forth, no grain sprouted.
Fever was placed upon the people.
The womb was bound so that it could not issue offspring.[64]

The protome cauldrons sometimes were decorated with an additional element, figured handle clamps, which strengthen the solar aspect of the cauldron griffins. These plaques, fitted with free-swinging loop handles, represent the solar deity rising from the winged disk.[65] This form of the sun-god is the familiar one of Ahura-Mazda in the East. A handle clamp from Olympia substitutes the griffin for the sun-god.[66] Another aspect of the nature symbolism of the cauldron ensemble may be indicated by Maxwell-Hyslop's suggestion that the conical stand of the Barberini cauldron has depicted on its sides representations of the weather god.[67] Further, Miss Roes has proposed that the flower-like bud on the lion's brow, which we have seen transferred to the griffin head, ". . . would be appropriate for the solar deity who always holds the emblem in Persia."[68] Thus it begins to appear that the protome cauldrons represent a unified solar symbolism that has its roots in the Near East and Egypt—in the winged sun-god, the griffin and lion protomes with their solar relationships, the serpents and the serpentine necks of the griffins with their Uraeus affinities.

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tamiens," *AbhKGWGött* n.f. 9 (1907) 19-20. For the metaphorical use of sun and sun-god: H. Frankfort, *Kingship and the Gods* (Chicago 1948) 308ff. That the winged sun-disk emerged in Egypt in the third millennium B.C. and was adopted by the Mitanni and Hittites: *CylSeals* 297.

[58] *Corpus* 689, 690. [59] *Corpus* 691.

[60] *CylSeals* 215, xxxiii, k.

[61] Barnett, *op.cit.* (supra n. 51) 74-75.

[62] "Prayer of Ashurbanipal to the Sun-god," trans. by F. J. Stephens in *Ancient Near Eastern Texts* (Princeton 1955).

[63] Nisaba: the grain goddess.

[64] "Atrahasis," trans. by E. A. Speiser, *op.cit.* (supra n. 62) lines 29-37.

[65] For catalogs of the cauldron clamps: F. F. Lehmann-Haupt, *Armenien, einst und jetz* (Berlin 1931) II, part 2, note 21; E. Kunze, *Kretische Bronzerelief* (Stuttgart 1931) supplement, brought up to date in "Verkannter orientalischer Kesselschmuck aus dem argivischen Heraion," *Reinecke Festschrift* (Mainz 1950) 100-01. Recent find at Olympia of cauldron with protomes attached: Kunze, "Die Ausgrabungen in Olympia im Frühjahr 1956," *Gnomon* 28 (1956) 317-20.

[66] E. Curtius and F. Adler, *Olympia* (Berlin 1890) IV, pl. xliv, fig. 791.

[67] Maxwell-Hyslop, *op.cit.* (supra n. 8) 154, pls. xxviii, xxix.

[68] Roes, *op.cit.* (supra n. 31) 68.

Windows, Recesses, and the Piano Nobile in the Minoan Palaces*

J. WALTER GRAHAM

PLATES 92-97

A very distinctive feature which characterizes the west, that is the principal, façade of the four Minoan palaces of Knossos, Phaistos, Mallia, and Gournia, is a series of broad shallow vertical recesses which break the otherwise smooth exterior surface of the wall at varying intervals and produce what may be termed a "paneled façade."[1] A single well preserved recess has also been found recently on the fine stone façade forming the northeast side of the Mycenaean palace at Pylos.[2]

Although such recesses may therefore be regarded as virtually "standard equipment" in palaces they are conspicuously absent in even such large Minoan mansions as the Little Palace and the Royal Villa at Knossos, and in the houses at Tylissos, Nirou Khani, and Mallia. They are likewise not found in the "summer-palace" at Hagia Triada.[3]

The historical origin of this architectural feature is to be sought, no doubt, in Egypt and the Near East. The ultimate prototype would appear to be a wall of vertical bundles of reeds connected by screens of reed matting and plastered with a layer of clay, a form of wattle-and-daub. Such construction was probably common in southern Mesopotamia by at least the early fourth millennium B.C.; later the form was translated into adobe-brick construction, and the tradition persisted for temple façades in Mesopotamia till the Hellenistic period.[4] In Egypt the fashion was copied in stone; an elaborate application is to be seen for example in the walls of the Step Pyramid complex of Djoser, the first pharaoh of the third dynasty.[5]

Traditionally, then, the recess principle had long been employed as a means of enlivening the surface of the exterior walls, and no doubt it had the same function in Cretan architecture. But I shall also attempt to show that windows were frequently located in these recesses, at least in the upper storeys. This is not a new idea. Others have assumed it without any attempt at formal proof; but there is far from general agreement on the matter as is clear from a statement made regarding these recesses in Pendlebury's standard handbook published in 1939. "The slight set-backs or recesses in the walls of the façade (of the Palace of Minos) are puzzling. At Mallia, both in the West Court and on the South side of the Central Court, they are regular; at Phaistos they occur, but the façades are too ruined for us to say more than that; and at Knossos they are quite irregular. They never seem to bear any relation to a room behind."[6]

These remarks are strangely inexact and incomplete. When Pendlebury says that at Knossos the recesses are "quite irregular" he clearly expects them to be related axially or symmetrically to elements of the façade and is puzzled to find a *raison d'être* for them since they are not. Their failure (according to him) ever to be related to a room behind would rule out, in his judgment, their being a locus for windows. Miss Banti has also declared, even more recently, that the idea has now been abandoned that the recesses indicate windows in the second storey.[7]

Pendlebury, indeed, has even expressed his scepti-

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[1] The only other occurrence of such recesses seems to be on the elaborate north façade of the Central Court at Phaistos; for a restoration see *AJA* 61 (1957) pl. 79, fig. 14, and an article on the Minoan Banquet Hall to appear shortly in the *AJA*.

[2] Through the courtesy of Prof. Blegen I was able to measure and photograph this recess in 1955; it measures 2.47 m. long by 0.18 m. deep.

[3] The façade of the Phaistos palace two stages earlier than the unfortunately named "Primo Palazzo" exhibits what superficially looks like two recesses in a façade built of orthostates and euthynteria as in the later palaces; but these are probably simply short stretches of façade between projecting parastades, *ASAtene* 35-36 (1957-58) 194, fig. 1; 219, fig. 35; *FA* 12 (1959) no. 2199, pl. x.

[4] Frankfort, Henri, *Art and Architecture of the Ancient Orient* (1954) 9.

[5] Smith, E. B., *Egyptian Architecture* (1938) 63.

[6] *Archaeology of Crete* 99. The recesses on the south side of the Mallia Central Court are of a somewhat different nature, cf. *AJA* 61 (1957) 259. Matz follows Pendlebury, *Kreta, Mykene, Troja* (Stuttgart 1957): the recesses have "mit der Raumdisposition dahinter nichts zu tun."

[7] *Festòs* II, 431, and cf. 445; yet a less definite position is taken on pp. 35f.

cism about the existence of windows at all in the Cretan palaces. "In the plan shown (he is referring to the main state halls of the Knossian Piano Nobile, cf. fig. 13) windows have been given, but in view of the set-backs in the façade, it is probably better to eliminate them from the plan—outside windows seem to have been avoided wherever possible—and to consider that sufficient light was obtained from the Corridor, whose cement paving implies that it was open to the sky, and from clerestory windows, for it is evident that the rooms did not all run to the same height."[8]

The adequacy of the suggested lighting from the corridor or from a hypothetical clerestory would seem highly doubtful. Also note that he actually uses the "set-backs" in the façades as an argument *against* the existence of windows!

For the moment let us merely say in rebuttal that windows in outside walls are found in the South House at Knossos, the Villa at Hagia Triada, and the Palace at Mallia,[9] and are prominent features of the house-fronts shown in the fragments of the well-known faïence mosaic from the Palace of Minos, occurring here, however, only in the second and third storeys.[10] If windows in the palaces too occurred only above the ground floor we need not be concerned at the infrequency of direct evidence for their use.[11] Indeed I would venture to suggest that an important consideration in so frequently placing the main rooms of the palaces not on the ground floor but on the floor above, was in order to be able to light these rooms freely with large windows.[12] For windows on the ground floor, especially when unglazed and unshuttered, are vulnerable to the peeper or the thief; second-storey windows afford comparative privacy and security, and command a better view.

But let us return to the recesses. Pendlebury seems to have been loath to admit, as we have seen, that they constituted a decorative embellishment of the façade because, he claimed, the three recesses along the west court at Knossos are not "regular"—he means, not centered on their façade elements (pl. 92, fig. 2).[13] Yet he admitted that the three on the west façade at Mallia *are* regular, and what he terms the "ruined" façade at Phaistos presents another very accurately placed example,[14] as does also the earlier Phaistos façade (pl. 92, fig. 2).

Nevertheless it could be denied—and I believe correctly—that the recesses *need* to be centered on, or otherwise symmetrically related to, a façade element in order to have an aesthetic effect. The breaking up of the smooth surface of the wall was doubtless in itself felt to be desirable, relieving the monotony, and creating a play of light and shadow. The retaining wall along the north side of the Theatral Area at Phaistos, for example, is interrupted by a series of slight setbacks whose purpose must have been ornamental.[15]

Indeed a good case could be made in support of a view diametrically opposed to the one held by Pendlebury to be axiomatic: the occasional symmetry of the recesses relative to their façade elements is merely the result of the fact that the window located in the recess was, at least in the upper storeys, normally centered on, or otherwise symmetrically located to, the room behind, and that this often coincided with the façade element.

At any rate in the instances just mentioned—the west façades of Mallia and Phaistos (pl. 93, fig. 3; pl. 94, fig. 5)—this correspondence does occur, and therefore they cannot be used to *prove* that the recess was considered a decorative feature of the façade. However, if any proof is needed, perhaps the clearest indication that the appearance of the recess was really considered from the exterior is to be found in the case of three recesses at Phaistos north of the Propylon (pl. 92, fig. 1, nos. 7, 8, 9), for

[8] *op.cit.* 186.

[9] Evans, *PM* II, 376-78; Pernier and Banti, *Guida degli Scavi Italiani in Creta* 34 (Hagia Triada); Chapouthier and Demargne, *Fouilles exécutées à Mallia, troisième rapport* (1942) 12. Cf. *Festòs* II, 445.

[10] *PM* I, 301-14.

[11] There is no direct evidence for windows in the Classical Greek houses at Olynthos yet the indirect evidence that they possessed windows even on the ground floor is strong, as I have argued in *Olynthus* VIII, 264f and *Hesperia* 22 (1953) 199-203.

[12] There are no doubt other factors involved, some psychological. Certainly the approach to the presence of a ruler of Phaistos up the sequence of monumental stairways, as described in our previous article (*AJA* 60 [1956] 151-57), must have greatly impressed the visitor; how tame by comparison is the arrangement of the Mycenaean megaron opening off the court on the ground floor, though Tiryns does insert a couple of shallow steps between the megaron and the court. Much of the ground floor of the Minoan palace was, in view of the lack of a general system of excavated cellars, necessarily occupied by store- and service-rooms. Similar considerations dictated the arrangement of the Italian *palazzi* with their main rooms in the *piano nobile*.

[13] Actually the north recess is very nearly centered on its façade element, about 7 m. from one end, and about 7¼ m. from the other; see below.

[14] The southern half of the orthostate course has disappeared, but it can be accurately restored from the euthynteria course; see following article on the Minoan unit of length.

[15] Pernier, *Il Palazzo minoico di Festòs*, I, 189f, fig. 80.

the lower end of all three of these is carefully made to terminate at the same level in spite of the fact that, due to their position above stairways, the number of courses below the bottom of each recess differs considerably.

Now let us examine the other dictum of Pendlebury, in regard to the recesses, that they "never seem to bear any relation to a room behind." The examples we have already cited show that this statement is not correct, but because these particular examples bear a significant relation to the *façade* they cannot be used to prove that the recesses also were intended to have any significant relation to the rooms behind. We must look for cases where there is a significant relation to the interior but not to the exterior. A clear instance is found at Phaistos where, north of the Propylon, a recess is accurately centered on the landing of a staircase (pl. 92, fig. 1, no. 8); and at Pylos, also, the recess bears no symmetrical relationship to the façade but does correspond closely with the room behind it on the ground floor.[16]

At Knossos too the southernmost of the three recesses is far off the center of its façade element, its south end being 5.03 m. from the south end of the wall, while its north end is only 3.17 m. from the north end (pl. 93, fig. 4). It is much more closely centered on the second-storey room behind, which would have covered the area over Magazines 3 to 5 (pl. 97, fig. 12), namely 3.83 m. from the south end, 3.17 m. from the north end.[17]

Another example of a different kind is the Magazine Block at Phaistos (pl. 92, fig. 1). Two recesses, nos. 2 and 5, are located almost directly opposite one another in the north and south flanks, yet they could not have been seen simultaneously from any single viewpoint on the exterior. Their relationship was presumably determined therefore with reference to the interior of the room.

If, then, the recesses are sometimes related to the interior and not to the exterior, it is difficult to conceive of any reasonable explanation save that in these cases windows were located in them; while it is highly probable that this was normally true also where the recess is related to *both* exterior and interior. The only instance, so far as I can see, of recesses occurring where a window is unlikely are the short and "incomplete" recesses on the north and south faces of the Phaistos Magazine Block[17a] (pl. 92, fig. 1, nos. 1 and 6). Another piece of corroborative evidence is the fact that the recesses never seem to have been located where they would be opposite a wall in the upper storey; indeed they rarely occur opposite walls even on the ground floor.

On the basis of these conclusions let us return to the other two recesses in the west façade at Knossos. The central one is of a curious double nature difficult to interpret, but apparently offering no evidence either for or against our hypothesis (pl. 94, fig. 6). The existence of a "Great Hall" of the form restored by Evans in the Piano Nobile (pl. 97, fig. 13) is assured by the two piers in Magazines 7 and 9 for a pair of columns above (pl. 97, fig. 12); and the central window also restored by Evans is reasonable enough, whatever its exact relation to the double recess, although I would restore it (pl. 97, fig. 12) to the full length of this double recess.

To the north of this "Great Hall" Evans restored, very conjecturally as he himself admitted, a Northwest Entrance System and a "Sanctuary Hall."[18] As thus restored the windows he placed in the west wall of the latter would have no relation to the recess;[19] in fact, as thus restored, it would constitute the one definite exception to the rule we have just noticed, that a recess is never opposite a partition-wall in the upper storeys (cf. pl. 97, figs. 12 and 13). But if we restore instead a great hall

[16] *AJA* 59 (1955) pl. 24; it would also have been centered on a room in the storey above, for such a room would probably have covered the area over the ground-floor room plus that over the adjoining rooms on either side.

[17] The original restoration of the Piano Nobile given in the *PM* II (1928) plan C, shows the area over Magazines 3 to 5 as a single room with two supporting columns; but in 1932 the plan was revised and appears in *PM* IV divided into three magazines corresponding to those below, labeled D, E, and F. Evans claimed (*PM* IV, 620) that at least D and E were assured, and cites without specific details the evidence of "door-jambs and parts of the upper walls, preserved more or less at the original level." A careful examination in 1959 showed an original door-jamb at the end of the south wall of Magazine D, none north of that; this need only indicate an off-axis door to the area over 3 to 5, which is certainly a common Minoan arrangement. The evidence for the change in the restoration does not seem conclusive. Moreover, on the top of the wall between Magazines 4 and 5, near the west end, there is now lying a rectangular stone base 1.04 by 0.72 m. with a circular raised area 0.34 m. in diameter (apparently not mentioned in the *PM*) which, though evidently not quite *in situ*, one would naturally suppose to have been intended for the north column shown in our restoration of the "Southwest Hall" (pl. 97, fig. 12).

[17a] And the north recess on stairway 6, if the palace did not extend so far north.

[18] *PM* II, 588-605.

[19] The notch of the recess is preserved in the euthynteria, and its south end has been restored, apparently conjecturally, in the wall itself.

covering the whole area over Magazines 11-16[20] the set of windows in this, appropriately the widest known, recess (about 6.20 m.) would be very closely, possibly exactly, centered on it (pl. 97, fig. 12). We would then have a great climactic series of three halls: the Southwest Hall, the Central Hall, and—largest of all—the Northwest Hall. It may also be noted from the table below that without this Northwest Hall Knossos would be unable to match the Central Hall at Mallia in size!

After reaching these conclusions I discovered at the site in 1959 that there is a further piece of evidence in favor of the reconstruction of a single hall over Magazines 11-16 which does not seem to have been noticed; at least Evans does not mention it nor does it appear on his plans. Against the north face of the partition between Magazines 14 and 15 (pl. 97, fig. 12) lies a well dressed block of limestone, evidently *in situ* and measuring 2.33 m. long by 0.54 m. wide and rising 0.14 m. above the floor level. Though not exactly centered, being 7.25 m. from the west wall and 5.80 m. from the east, its position is so obviously analogous to the enlargements (also not centered) in the walls between Magazines 7, 8 and 8, 9 that one can hardly avoid the conclusion that on the limestone block stood a wooden pier to buttress the wall at a point below a column in the room above. No corresponding strong point is to be seen in the wall between 12 and 13, but this wall is 0.15 m. thicker than that between 14 and 15 (1.33 instead of 1.18 m.). I have therefore restored only two columns, as in the Central Hall, rather than two rows of two or three columns, for although the free span approaches twenty-five feet yet this is scarcely any longer than the span in the great Central Hall at Mallia.

One of the most striking features of the plans of the four palaces of Knossos, Phaistos, Mallia, and Gournia, is the similarity of the arrangement of their rooms along the west façades which we have been considering: in all four we have magazines, and in each case they are grouped in blocks; this is clearest at Knossos and Mallia (pl. 93, fig. 3). The reason for such a grouping is not apparent on the ground floor, but on the floor above, as we have just seen at Knossos, we get a series of large, approximately square halls. Our plan (pl. 94, fig. 5) shows a restoration, at uniform scale, of the Piano Nobile along the west façade of all four palaces on the basis of this principle.[21]

The square or nearly square proportions of these rooms in all the palaces is remarkably consistent:

Approximate Dimensions of Piano Nobile Rooms in Meters

		E. to W.	N. to S.
Knossos	Northwest Hall	17½	15½
Phaistos	South Hall	17	15
Mallia	Central Hall	16	16
Knossos	Central Hall	12½	14½
Phaistos	Central Hall	14	12
Phaistos	North Hall	12	14
Knossos	Southwest Hall	10½	9½
Mallia	South Hall	10	10
Mallia	North Hall	10	9
Gournia	Central Hall	6	9
Gournia	South Hall	6	7

In this squareness, which can scarcely be other than intentional, I would like to suggest that we can find at least part of the explanation for the strangely jogged profile which is such a conspicuous feature of the west façade of all four palaces (pl. 93, fig. 3; pl. 94, fig. 5).[22] Since the east limit of the rooms, being bounded by a common corridor, is on the same north-south line, we can formulate the "law" thus: the amount of the projection beyond the general line of the west façade is a direct function of the width (north to south) of the room; in other words the wider the room the greater the projection, although the correspondence is of course not absolute.[22a]

Another feature of the west façades of the Minoan palaces, which provides further illustration of the remarkable homogeneity observable in the plans of the Cretan palaces in general, is a peculiar coincidence of dimensions which, I think, has not before been noticed.

The central and dominant unit of the Mallia west façade, where it projects beyond the units to its north and south, measures in its north-to-south length 18.19 m. (pl. 93, fig. 3). In the small palace

[20] Mackenzie (*BSA* 11 [1904-05] 217) treated this area over Magazines 11-16 as a single hall.

[21] Whether all the Piano Nobile rooms were actually as shown in our "ideal" restoration may well be doubted, and may be modified in future studies, but this does not affect the present argument.

[22] The taste for contrast and variation, evidenced also by the recesses and setbacks, may also be a factor.

[22a] Cf. *Mallia* III, 71f.

at Gournia the main element measures 18.13 m. At Phaistos the main element of the "Primo Palazzo" at the euthynteria level measures 18.24 m. The main element of the latest palace at Phaistos measures about a meter short of this figure (17.22 m.), apparently because its width was differently determined (see following article); but the combined length of the two façade elements to the south of this adds up to about 36.40 m., or twice the length of the preceding examples.[23] Similarly at Knossos the length of the two most strongly projecting elements of the west façade totals 36.24 m.[24]

We may sum up the conclusions reached in this paper as follows:

1. The use of the recesses was traditional, and their purpose decorative: to enliven the façade.

2. Windows are not the *raison d'être* of the recesses, and must have occurred frequently where there were no recesses.

3. When there were both windows and recesses in the same façade element the windows would be located in the recesses.

4. In this case the exact location of the recesses would be dictated by the position of the windows, which was in turn determined by the shape of the rooms they served.

5. One of the main advantages of the second storey ("Piano Nobile") for the important rooms was that it permitted the liberal use of windows.

6. The position of the recesses provides, since they indicate, *ex hyp.*, the location of windows, clues for the restoration of the Piano Nobile rooms.

7. A single great Northwest Hall should accordingly be restored at Knossos in the Piano Nobile.

8. The Piano Nobile rooms tended to be approximately square.

9. This helps to explain the characteristic indented profile of the west façades in plan.

10. The length of the façade elements in the various palaces exhibits a remarkable correspondence which emphasizes the striking similarity in the design of the Cretan palaces.

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[23] The east-west wall at the extreme south end is rather irregular and recedes somewhat northward toward its west end; the northern of the two façade elements here referred to measures about 18.40 m. at the euthynteria level; the southern is some 17.40 to 18 m.

[24] Further implications of this remarkable series of coincidences will be considered in the following article on the Minoan unit of length.

The Minoan Unit of Length and Minoan Palace Planning*

J. WALTER GRAHAM

PLATES 92-97

The attempt to determine what units of linear measurement were employed in ancient buildings is notoriously hazardous and full of pitfalls, yet when evidence unmistakably bearing on metrological questions does present itself it would be a cowardly procedure to suppress it merely for fear of "waking laughter in indolent reviewers."

Some quarter of a century ago when studying the foot-length, or rather foot-lengths—for there proved to be two—in use at Olynthos in the fifth and fourth centuries B.C. I found that there were two reliable types of evidence: *round* numbers of feet in *long* dimensions—the city-blocks measured 300 by 120 feet; and *whole* foot-lengths in *short* dimensions recurring in a series—the three-foot intervals between the vertical incised lines on carefully decorated stuccoed walls.[1]

Data analogous to the "short-dimensional" evidence at Olynthos, and therefore potentially useful for the determination of the linear unit used by Minoan architects of the second millennium B.C., have recently turned up as a by-product of my study of west façades of the Cretan palaces.[2] The smooth walls of these façades are varied at intervals by shallow recessed panels often about 15 cm. deep and varying from over two to over six meters in length.[3] The examples significant for our purpose are those in which the same measurement repeats within the same line of façade.

We shall begin at Phaistos. At the level of the lowest wall-course of the Magazine Block, south of the Grand Propylon, the interval 3.34 m. occurs four times:[4] twice for the recessed panels and twice for the adjoining lengths of wall (pl. 92, fig. 2).[5] It is of course only a hypothesis, but a sufficiently reasonable one to test by experiment, that this interval was measured in an even number of units. But what kind of units? The only unit definitely known to have been used in the Bronze Age is the cubit, usually around a foot and a half, i.e., about 45 cm., though the Egyptian royal cubit was 20.61 inches or 52.35 cm. Only an experimental value of 7 cubits would produce a possible cubit value within this range: $\frac{3.34}{7} = 47.7$ cm. But this neither agrees with any known contemporary cubit value nor will it produce fruitful results when tested on Minoan material.

But since the Classical Greeks, the heirs, through the intermediacy of the Mycenaean Greeks, of so many elements of Minoan culture, used the foot as the basis of their linear system, it would seem that this possibility should also be tested. A testing value of 10 feet yields a foot of 334 mm.; of 12 feet, a foot of 278 mm. The first value is rather large, the second definitely small, and neither seems to bring results when tried out on the available Minoan data. However the intermediate value, 11 feet, gives a foot of between 303 and 304 mm. (more exactly 303.636 mm.), a very reasonable value since

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[1] *Olynthus* VIII, 45-51.

[2] See the preceding article on "Windows, Recesses, and the Piano Nobile."

[3] The statistical method being used by Miss Helen Kleinschmidt, a graduate student at Radcliffe, in her evaluation of the foot-unit used in mediaeval buildings, and which she has kindly told me of in a recent letter, is not applicable in dealing with the Cretan material since the data are not sufficiently abundant. If we merely draw up a table with the lengths of all twenty-one known recesses arranged in a progressive series a brief examination of their distribution will make it clear that not many can have been determined on the basis of a single and consistent unit, or at least in whole numbers of that unit. And we must, at least at this initial stage of operations, restrict ourselves to whole numbers, for to attempt to determine an unknown unit with the help of assumed *fractions* of that unit is to risk plunging deeper and deeper into a quagmire of doubt and uncertainty.

[4] Above this course the recess widens out to 3.48 m. *Festòs* II, 35, wrongly gives the width of the recess as 3.20 m.; this is probably an approximate measurement scaled from the general plan.

[5] Three of these dimensions can be directly measured in the remains; the fourth—the length of the southern recess—is dependent on a virtually certain restoration.

the English foot is 304.8 mm., and one which does produce significant results, as we shall attempt to show.

On the same west façade at Phaistos, north of the Propylon, the measurements 2.74, 2.74, and 2.76 m. occur,[6] approximately nine "Minoan feet," or "M. ft." as we shall abbreviate it in this article: 9 x 303.636 = 2.733 m. And the recess on the south face of the Magazine Block near its southwest corner measures 3.02 m., close to 10 M. ft.

On the west side of the palace at Mallia the spacing 3.31 m., only 3 cm. short of those just mentioned at Phaistos on the west face of the Magazine Block, occurs twice on the same façade element.[7] The adjacent façade element to the south has a central recess 6.06 m. wide and the wall surfaces on either side measure 6.03 and 6.09 m. (pl. 92, fig. 2). This would make each part approximately 20 M. ft. (6.07 m.), and give for the total width of this, the central and dominant element of the Mallia façade, which measures 18.19 m., the round number of 60 M. ft. (18.22 m.).[8]

Confidence that this very promising result is not delusory is increased by the coincidences, already noted in the preceding article, which appear when we compare the façades of the other palaces. The 60 M. ft. dimension is also found in the palace at Gournia, where the main element measures 18.13 m. (pl. 93, fig. 3); in the "Primo Palazzo" at Phaistos the main element measures at the euthynteria level 18.24 m. (pl. 92, fig. 2; pl. 93, fig. 3), while in the last palace the two façade elements south of the Magazine Block (pl. 93, fig. 3) are each approximately 60 M. ft. long and total about 36.40 m. or 120 M. ft. (36.44 m.); finally at Knossos the length of the two most important façade elements ("North" and "Central" Units) totals 36.24 m., again 120 M. ft. (figs. 2, 3).[9] In spite of minor discrepancies the series of coincidences is very striking.[10]

The results outlined thus far in the present article were based on the study of data collected in the course of a visit to Crete in 1955, data collected without any intention of attempting to discover a Minoan system of linear measurement.[11] One of the major objectives of my second visit in 1959 was to check these data thoroughly and to try to discover further evidence that might corroborate or else disprove the hypotheses based on the 1955 data. For this purpose I employed two steel tapes, one of 25 m., the other of 100 English feet, and most of the measurements were taken with both tapes to serve as a check against each other, and were made with the aid of my son, whose assistance and forbearance are gratefully acknowledged. The 100 foot tape was also valuable as a first rough guide in spotting significant measurements since, even at full stretch, the difference between English and Minoan feet would amount to only about 12 cm. (5″).

A search for further examples of repeated series of measurements similar to those on the west façades brought to light only one comparable set: the long east porticoes of the Central Court at Mallia and Phaistos, with their alternating bases for round columns and rectangular piers. The spacing between the pier bases in the northern part of the Mallia portico (pl. 96, fig. 9) is uniformly 14 M. ft.,[12] while each base measures approximately 2½ M. ft., north to south. The round column bases are closely centered on the axis, i.e. 7 M. ft. from each pier base. A further check made by measuring from points A to B (pl. 96, fig. 9), which should measure by hypothesis 5 × 14 plus 4 × 2½ = 80 M. ft., gave a value of 24.36 m.; 80 M. ft. = 24.29 m. At

[6] The recess itself measures 2.74 m. and the sections of façade to its north and south measure respectively 2.76 and 2.74 m.

[7] The recess itself measures 3.13 m.; the lengths of wall to its north and south, 3.31 m.

[8] No detailed plan or account of this part of the palace has yet been published, and the measurements here given were all taken, with the kind permission of the French School, by myself in 1955 and 1959; unfortunately the walls, elsewhere in the palace so perfectly preserved in their lower courses, are destroyed in the southern part of this projecting element of the façade, but sufficient evidence survives to make the restoration and measurements certain.

[9] The exact length of the two elements in the last palace at Phaistos, taken together, given in the text as about 36.40 m., is a little indefinite since the east-west wall at the south end is a bit irregular. The length of the northern of the two elements, at the euthynteria level, is about 18.40 m.; the southern, about 18 m. In the Gournia element mentioned above there is a slight jog at almost exactly half way, breaking it into lengths of about 29½ and 30½ M. ft. The Knossos façade breaks at lengths of 52+ M. ft. and 67+ M. ft.

[10] The prominence of the figure 60 in these measurements might suggest a use of the sexagesimal system; but the Minoan and Mycenaean numeral system, at least of whole numbers, seems to have been purely decimal (cf. Bennett, *AJA* 54 [1950] 220).

[11] With minor corrections from checking in 1959. These results were embodied in a paper read at the Christmas meeting of the Archaeological Institute of America in 1955 entitled, "Windows, Recesses, and the Piano Nobile." Through a misunderstanding it was stated in the *AJA* 60 (1956) 178, that the paper was the same as the article published in the same issue (pp. 151-57) under the title, "The Phaistos 'Piano Nobile.'"

[12] The southernmost space is a corridor, and the position of the base at the north end of the opening has evidently been affected by this.

Phaistos, where only the northern half of the portico is preserved, two intervals of the same type as in the Mallia portico gave identical measurements of 3.65 m. or 12 M. ft. (3.645 m.)

Another architectural feature clearly calling for investigation in a study of this kind is the north façade of the Phaistos Central Court, which was carefully designed in a symmetrical fashion with a central doorway and to the left and right of this balancing pairs of half-columns, deep niches, and shallow recesses, with intervening stretches of plain walling (pl. 95, fig. 8; pl. 96, fig. 10). Careful measurements show, however, that the length of the corresponding features does *not* always agree closely; for example the west recess measures 2.30 m. while the east one is 9 cm. longer. Yet it is difficult to believe, in view of the regular intervals of the west façade and of the Central Court east portico, that the designer of the Phaistos palace did not at least lay out the scheme here symmetrically even if it was, for certain reasons, not exactly executed; and it will be seen that if a table of measurements (Table 1) is drawn up the intervals, except for *cd*, *b'c'*, and *a'b'*, are much closer to an even foot length than the law of averages would dictate, and that all balancing features, except *ab* and *a'b'*, are closest to the *same* foot value. The fact that the total amounts to the round number of 80 M. ft. (40 M. ft. on either side of the axis of the doorway) increases our confidence that we are on the right track. Forty Minoan feet (12.15 m.) will in fact bring us from the axis of the doorway (*x*) to a point approximately at the southeast corner of the block north of the Central Court and in line with the east face of the stylobate of the east portico; and since the determination here is indefinite to the extent of a few centimeters let us allow ourselves the benefit of the doubt and set point *a* exactly 12.15 m. east of the axis, *x*. Let us suppose that the designer of the façade, prefatory to actual construction, measured out the principal points[13] on the ground starting from the east end,[14] and do the same in our table (Table 2). The 2nd column gives the hypothetical distance from our starting-point *a* in terms of Minoan feet; the 3rd, in the equivalent metric measurements; the 4th, in the actual observed measurements; and the last, the discrepancy between the last two in terms of centimeters and English inches. It will be seen at once that the errors are comparatively small, now a little short of where they should come, now a little long, tending to cancel each other out. The error is in fact small until the final point, but this is nearly a foot short of its theoretical position;[15] the reason will be considered later.

TABLE 1

	Minoan Feet		*Meters*	*Actual Measurement*	*Error*		
ab	14′	=	4.25 m.	4.19 m.	6 cm.	=	2½″ short
bc	8′	=	2.43 m.	2.39 m.	4 cm.	=	1½″ "
cd	5′	=	1.52 m.	1.64 m.	12 cm.	=	4¾″ long
de	6′	=	1.82 m.	1.76 m.	6 cm.	=	2½″ short
ef	4′	=	1.22 m.	1.25 m.	3 cm.	=	1¼″ long
ee′	6′	=	1.82 m.	1.83 m.	1 cm.	=	½″ "
e′f′	4′	=	1.22 m.	1.26 m.	4 cm.	=	1¾″ "
d′e′	6′	=	1.82 m.	1.77 m.	5 cm.	=	2″ short
c′d′	5′	=	1.52 m.	1.56 m.	4 cm.	=	1½″ long
b′c′	8′	=	2.43 m.	2.30 m.	13 cm.	=	5″ short
a′b′	14′	=	4.25 m.	4.06 m.	19 cm.	=	7½″ "

Many isolated examples could be cited of intervals which might be expected to have been measured and which do actually measure an even number of the Minoan feet here postulated.[16] But it is

[13] Points *d*, *e* and *d'*, *e'*, are taken not at the edges of the niches but at the outside edges of the narrow vertical panel framing the niches (see pl. 95, fig. 8); for *a* and *a'* see below.

[14] He may have started from the west end; it would make no essential difference to our argument.

[15] The considerable error in the first two points, which mark the east and west ends of the east recess, is probably to be explained by the desire to bring the windows in the upper storeys as close as possible to the axis of the great halls above rooms 58-60, 90-92; see the next article in this series, "The Minoan Banquet-Hall" (forthcoming).

[16] For example, the width of the latest Corridor of the

TABLE 2

	Minoan		*Actual*	
	Feet	*Meters*	*Measurement*	*Error*
ab	14′ =	4.25 m.	4.19 m.	6 cm. = 2½″ short
ac	22′ =	6.68 m.	6.58 m.	10 cm. = 4″ "
ad	27′ =	8.20 m.	8.22 m.	2 cm. = ¾″ long
ae	33′ =	10.02 m.	9.98 m.	4 cm. = 1½″ short
af	37′ =	11.24 m.	11.23 m.	1 cm. = ½″ "
ax	40′ =	12.15 m.	12.15 m.	
af′	43′ =	13.07 m.	13.06 m.	1 cm. = ½″ "
ae′	47′ =	14.27 m.	14.32 m.	5 cm. = 2″ long
ad′	53′ =	16.09 m.	16.09 m.	
ac′	58′ =	17.61 m.	17.65 m.	4 cm. = 1½″ "
ab′	66′ =	20.04 m.	19.94 m.	10 cm. = 4″ short
aa′	80′ =	24.29 m.	24.00 m.	29 cm. = 11½″ "

safer to rely on the evidence already presented. Nor can we at present find support in the use of the foot by other Bronze Age peoples.[17] It is reasonable to suppose that the Mycenaean Greeks, who took over so many decorative features from Minoan architecture, adopted their system of measurement; I have been able to discover some examples of the possible use of a Minoan foot, but only in isolated, and hence uncertain, instances.[18] Further investigation is needed. Since the Classical Greeks and, hypothetically, the Minoans used the foot unit we would also naturally suppose that the tradition came through Mycenaean Greece.[19] It would however not be necessary to assume that the actual

Procession at Knossos is given as 3.34 m. (11 M. ft. = 3.34 m.), Evans, *PM* II, 679; and the width of the southern entrance to the Mallia Central Court is 5.45 m. (18 M. ft. = 5.46 m.). A good many examples occur of painted plaster in which the different color zones were marked off sharply by incised lines, but no series, so far as I know, is regular enough or well enough preserved to afford useful evidence; an example from the East-West Corridor in the "Domestic Quarter" at Knossos shows two panels, each of which, if the borders on both sides be included, measures approximately 3 M. ft., to judge by the accompanying scale (*PM* I, 356, fig. 255).

[17] Clark and Engelbach, *Ancient Egyptian Masonry*, mention the possibility that a foot was used as a rough measure in certain granite quarries, but observe that "the Egyptian makes no reference to a foot" (p. 64). Pope (*Survey of Persian Art* I, 326) repeats estimates by Dieulafoy and Pillet of a supposed foot in use by the Persians of either 13⅛″ (33.4 cm.) or 13⅓″ (*sic*!) (34.3 cm.); but these can hardly be taken seriously, and belong, in any event, to the 1st millennium. On the basis of two small fragments of what are evidently linear measures, one of shell from Mohenjo-daro about 2½″ long, the other from Harappa of bronze and about 1½″ long, it has been deduced (from the former) that a foot of 13.2″ = 335 mm., and (from the latter) a cubit of 20.62″ = 525 mm. were in use in the 3rd millennium Indus Valley civilization. A series of measurements given for streets, houses, and public buildings from both cities are then said to illustrate the use of both measures, even in the same building (Vats, M.S., *Excavations at Harappa*, India Archaeological Survey [1940] 365f; Mackay, Ernest, *Early Indus Civilizations*[2] 103; Wheeler, Mortimer, *The Indus Civilization* [1953] 62). In my opinion these measurements are so loose as to prove absolutely nothing; at any rate no convincing detailed study has been published. The two marked rods are no doubt linear measures, and evidently quite accurately made, but of what larger units they form parts is uncertain; the interpretation of the one as representing subdivisions of a cubit seems reasonable, but the best that can be said of the "foot" is that it is not entirely impossible. Still another possibility is the recent suggestion of J. L. Caskey that the incised lines on the plastered walls of his Early Helladic palace, the "House of the Tiles" at Lerna, indicates a foot of about 30 cm.; and he noted other dimensions of wall thicknesses, doorways, and staircases possibly laid out on such a foot (*Hesperia* 24 [1955] 40 and note 29). The width of this building, given as 11.78 and 12.13 m. at the west and east ends (*Hesperia* 25 [1956] 163) would amount to the round number of 40 feet, while the length, 25 and 25.10 m., might be interpreted as 80 feet plus one wall thickness; an earlier palace, below the first, has a comparable width (*JHS, Archaeological Reports for 1958*, 7). If the EH people were racially related to the Bronze Age Cretans, it is conceivable that there is some real connection between this hypothetical 3rd millennium foot and the 2nd millennium foot in Crete.

[18] Petrie in his *Inductive Metrology* (1877) 85, finds a foot of 295-296 mm. (the "Ionic" foot, see next note) in use in Bronze Age monuments at Mycenae, Tiryns, and Orchomenos, but he gives no exact details how he arrives at the measurements he used to reach this conclusion, and the results he reaches by his "inductive" methods are frequently so fantastic as to inspire no confidence in any of his determinations unless they can be independently supported. Some linear B tablets contain a phrase "nine- (or six-) foot tables" which was first interpreted to mean that they had nine (or six) legs, but as this was unlikely it is now interpreted in Chadwick, *Docs. in Myc. Gk.* 339f, to mean that the tables were nine (or six) feet long; if correct this indicates that the foot was used in Mycenaean Greece, though perhaps merely informally or approximately, as a linear measurement.

[19] R. V. Nicholls of the Fitzwilliam Museum informed me (1959) that he believes that there is evidence for two foot-

value of the Minoan foot should have been preserved for a millennium, and indeed neither of the two commonly used Greek feet, the "Doric" foot of about 327 mm., and the "Ionic" foot of about 295 mm.,[20] is particularly close to the hypothetical Minoan foot. Nevertheless it is suggestive that in a region of such strong Mycenaean traditions as the Argolid, at Epidauros, the Classical stadium was laid off on a foot close to 302 mm.[21] This may however be pure coincidence as it is certainly a coincidence that the English foot, which goes back only to the reign of Henry III in the 13th century A.D.,[22] is perhaps only a shade over a millimeter longer than the Minoan foot.

PALACE PLANNING

For the balance of this paper let us see whether anything can be learned of the planning of Minoan palaces if we assume the correctness of our hypothesis of a Minoan foot in the neighborhood of 303 mm.[23] We have already found that several elements of the palace at Phaistos seem to have been laid out in round numbers of feet: the 80 M. ft. north façade of the Central Court, subdivided into two 40's on the axis of the door; and the two approximately 60 M. ft. projections of the west façade. In 1959 I made an exhaustive series of measurements in the more regularly built parts of the palace to discover whether there were further illustrations of this practice; the results are shown on the plan (pl. 95, fig. 7).

The length of the Central Court, which is closely determinable though badly destroyed at the south end, is about 51.70 m. = 170 M. ft. (51.62 m.); this may be divided into a 70 M. ft. length from the north façade to the south side of corridor 7, 21.40 m. (70 M. ft. = 21.26 m.), and a 100 M. ft. length from that point to the south end of the Central Court (51.70 − 21.40 = 30.30 m.; 100 M. ft. = 30.36 m.). The width of the Central Court including both the east and west stylobates, varies considerably: at a point as far south as a measurement can now be made it amounts to about 24.50 m., while near the north end it has diminished to about 24.05 m.; 80 M. ft. = 24.29 m., i.e. approximately half-way between the extreme measurements. As can be seen even on the plan, the west edge of the west stylobate veered too far to the eastward when being laid out, and when the line is correctly drawn (as indicated by the dashed line in pl. 95, fig. 7), it explains the fact noticed above that the west end of the north façade of the Central Court, as actually constructed, falls 0.29 m. short of its calculated position. It is quite possible that this "error" in laying out the north end of the west stylobate was an intentional last-minute adjustment to allow stairway 39 an extra foot in width.

Now let us turn to the Propylon. The great stairway measures 13.60 to 13.75 m.; 45 M. ft. = 13.66 m. The east-west wall along the south side of this stairway measures 12.16 m.; 40 M. ft. = 12.15 m. That north of the stairway measures 10.95 m.; 36 M. ft. = 10.93 m. South of the Propylon in the Magazine Block the distance from the west face of the heavy wall between Magazines 36 and 37 to point "X" (the intersection of the line of the north façade of the Central Court with the "corrected" line of the west edge of the west stylobate) measures 18.23 m.; 60 M. ft. = 18.22 m. Thus the total length from X to the west face of the Magazine Block amounts to 18.23 plus 12.16 = 30.39 m.; 100 M. ft. = 30.36 m. The entire length along the line of the north façade and the south face of the north wall of the Magazine Block, from the west face of the Magazine Block to the southeast corner of the block north of the Central Court is, as closely as it can be measured, 54.65 to 54.70 m.; 180 M. ft. = 54.66 m.

The north-to-south breadth of the Magazine Block from wall-face to wall-face is about 15.10 m., though subject to considerable variation (see plan); 50 M. ft. = 15.18 m. The width of Corridor 7 is 5.16 m.; 17 M. ft. = 5.16 m. From the south face of the Magazine Block to the projecting north wall of 16, at the euthynteria level, the distance is 18.40 m.; 60 M. ft. = 18.22 m. From this point to the south-

lengths in early Geometric Smyrna, near the later common Greek standard feet of 295 and 327 mm. He bases this on a large number of measurements made on bricks from the recent excavations. If this proves reliable it will provide a welcome link between the Bronze Age and the Classical Greek foot.

[20] The terms "Doric" and "Ionic" are due to Dinsmoor; see his *Architecture of Ancient Greece* (1950) 54 note 4, 222 note 2.

[21] Not only are the stone start and finish lines preserved in situ, but also stone markers at every 100 feet (the plethron), *Praktika* (1902) pl. A.

[22] Berriman, A. E., *Historical Metrology* (1953) 169.

[23] Our calculations will be kept at the 303.64 mm. value for, although it would be ridiculous to claim such precision for the Minoan foot, nothing would be gained except easier calculation if we selected 303 or 304 mm.

west corner beyond 98 the measurement is 17.40 m., some 0.80 m. short of the 60 M. ft. interval; but, as may be seen on the plan, this wall is very irregular and jogs about 0.60 m. further south as it runs east.[23a] The east to west measurement of the block containing rooms 8-13, 17-19, and 23-24, is difficult to determine precisely but, as may be seen from the alignment with the east wall of 30 and 36 in the Magazine Block, was theoretically, at least, 60 M. ft. The east to west measurement of the block south of this one, also difficult to find exactly, is about 10 M. ft. greater, that is about 70 M. ft.

The areas in the north, northeast, and east of the palace do not lend themselves to determinations of this kind, partly because the orientation of the walls is much less regular, and partly because of the large number of small rooms with few or no distinct blocks. It seems clear that these areas were added (probably with no real time gap) after the Central Court and the blocks immediately north and west of it were either completed or at least under construction.

Hypothetically and approximately we might reconstruct the procedure of our unknown Minoan architect as follows: first he laid off a long north-south axis which was to establish the west edge of the west stylobate of the Central Court. Next, at a point 170 M. ft. from the south end of the first line and at right angles to it, he drew an east-west line,[23b] the eastern 80 M. ft. of this being assigned to the façade at the north end of the Central Court; the western 100 M. ft., to the south face of the north wall of the Magazine Block—the thicker west part of this wall wavered south of the theoretical east-wall line. The east and south boundaries of the Central Court were then traced out, projecting them from the points already established.

Next the north-south width of the Magazine Block was established at 50 M. ft. and this block then constructed, giving it very thick walls because of the importance and height of the three storeys here erected.[24] Hand in hand with this must have been undertaken the construction of the great Propylon-stairway system which we believe formed the approach to the upper halls of the Piano Nobile above the Magazine Block, giving the Propylon-stairway a north-south width of 45 M. ft. Sixty Minoan feet west of the main north-south axis (through X) a line was then drawn which 1) marked the west face of the great columned opening at the head of the stairs; 2) marked the west face of a heavy north-south wall in the Magazine Block (east of 30 and 36) which probably was designed to sustain a pier-and-door partition in the halls above; 3) marked the west end of Corridor 7 leading into the Central Court and the west façade of a block of rooms, with a north-south width of about 60 M. ft., built to the south of the Magazine Block. Another block south of this again was laid out with dimensions roughly 60 M. ft. north-south by 70 M. ft. east-west.

The wall lines forming the north side of the Propylon were then projected eastward and returned southward to form the north and east walls of an important block of rooms north of the Central Court whose upper storeys contained, it will be suggested in an ensuing article, the formal banquet hall or halls of the palace.

In view of the many similarities in the plans of the three major palaces we might expect to find corroboration in the palaces at Knossos and Mallia for our hypothetical reconstruction of the way in which the palace at Phaistos was planned.

At Knossos, however, supporting data are less abundant than might be hoped. This may be the result of a number of factors: that the boundaries of the Central Court (the focal area of the plan) are not clearly preserved; that the palace underwent many modifications, alterations, and more or less complete reconstructions during its long history; and that the extensive modern repairs and "reconstitutions" make accurate measurement difficult. Nevertheless we have already noticed that the sum of the north-south length of the two major projections of the west façade amounts to 36.24 m.; 120 M. ft. = 36.44 m. In addition, the sum of the north-south length of the four main projections (including magazines 3 at the south to 18 and two rooms beyond at the north) amounts to 60.54 m. (10.80 + 15.84 + 20.40 + 13.50 m.); 200 M. ft. = 60.73 m.

In the palace at Mallia there is a scarcity of the large, clear elements of plan so helpful at Phaistos. Nevertheless a few apparently significant examples of measurements in round numbers of Minoan feet can be distinguished. We have already mentioned

[23a] Or, as above, the distance from the south face of the Magazine Block to the south face of 98 is ca. 36.40 m. = 120 M. ft. (36.44 m.).

[23b] Cf. *Festòs* II, 8.

[24] See *AJA* 60 (1956) 151-57 for a suggested restoration.

the central, and principal, west façade element which measures 18.19 m. long, north to south (60 M. ft = 18.22 m.); but it also measures 60 M. ft. (actually 18.23 m.) from the west face of the Corridor of the Magazines to the face of the orthostates on the west court. The length of the Central Court, including the north portico, is approximately 51½ m., very close to that at Phaistos (51.70 m.); 170 M. ft. = 51.62 m. The east-west width of the Mallia Central Court, measured between the stylobates, varies from 22.15-22.40 m., while at Phaistos the same dimension varies from 22.05-22.45 m.; we may suppose that here as at Phaistos the actual dimension plotted out was 80 M. ft. (24.29 m.), which was to include the two stylobates, each about one meter wide.

In view of the virtual identity of measurements of the courts of the Phaistos and Mallia palaces we might consider the possibility that at Mallia also the line of the west edge of the stylobate was taken as a north-south axis and the line of the north façade of the Central Court (i.e. the rear wall of the north portico) as an east-west axis. The distance from the north-south axis to the face of the main west projection of the Phaistos palace was 100 M. ft.; the corresponding measurement at Mallia is approximately 150 M. ft.,[25] 90 M. ft. to the west face of the Corridor of the Magazines, and 60 M. ft. from that point to the west court as already mentioned. The entire length of the east-west axis from the west court to the east side of the east stylobate of the Central Court at Phaistos measured 180 M. ft. (100 plus 80 M. ft.); the corresponding measurement at Mallia should be 150 plus 80 M. ft. = 230 M. ft. = 69.84 m., while the actual measurement is approximately 69.63 m.

That the principal dimensions of large and important buildings should often have been laid out in round numbers—when not restricted by particular physical circumstances such as the topography of the site or the presence of pre-existing structures—is not only *a priori* to be expected but can be attested by known examples in the 1st millennium, such as the "Hecatompedon" of the Athenian Acropolis or the 300 by 120 foot blocks of Olynthos, and by the Egyptian pyramids of the 3rd millennium such as the Great Pyramid, which measured 440 cubits to each side of its base by 280 cubits in height and whose "king's chamber" was 10 by 20 cubits.[26]

Briefly then our conclusions are:

1) That there is good evidence for the use of a foot with a value between 303 and 304 mm. as a standard of length in the palaces at Phaistos, Mallia, Knossos, and Gournia.

2) That the foot as a linear measure was probably used in Mycenaean Greece and passed on to the Classical Greeks, amongst whom it possibly survived locally with approximately its Minoan value.

3) That by following foot-unit dimensions in round numbers we are able to see in the last palace at Phaistos, and more dimly at Mallia and Knossos, something of the way in which the Minoan architects set about designing the palaces at these sites.

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[25] Since the width of the wall along the west side of the Mallia Central Court is very variable I actually took a measurement from its *east* face to the west face of the orthostates on the west court; this amounted to 46.23 m.; 150 M. ft. = 45.55 m., thus allowing 0.68 m. for the wall thickness. Accurate measurements cannot be scaled off the general plans of the Mallia palace so far published. As I have been told by a member of the French School this plan has grown out of a series of additions made as the excavations advanced, and cumulative errors have produced discrepancies of a meter or more in certain parts. An accurate north-south section, of which I was generously given a copy, has recently been drawn, but no general revised plan is, I understand, contemplated in the near future.

[26] Badawy, *A History of Egyptian Architecture* I, 135; he also notes (p. 69) that Zoser's 3rd dynasty precinct measured 544.9 m. long = 1000 cubits. The lake built by Amenhotep III at Thebes was to be 3700 by 700 cubits (Smith, E. B., *Egyptian Architecture* 219).

Problems of Hera's Cult-Images*

CHRYSOULA KARDARA

To T. J. Dunbabin

PLATES 98-101

THE KESTOS OF THE LEAF-CROWN[1]

Chiefly by means of the Piskokephalo head, V. Müller[2] and L. B. Holland[3] proved the existence of the feather crown in prehistoric times in Greece. Chiefly by means of the triangular gold foils from the first and third shaft graves at Mycenae, Karo also showed that Late Bronze Age Greece had a related type of crown: the leaf-crown or dentated crown.[4] Herbig questioned the existence of the leaf-crown in prehistoric Greece;[5] he did not discuss the presence of the triangular gold foils in the two shaft graves, but considered the leaf-crown a characteristic feature of the Dorians, the Illyrians and the Philistines; and tried to trace its origin to the

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Gratitude is expressed to the British Council for the scholarship in 1958-59 which enabled me to complete this work in Oxford; and to the Phi Beta Kappa Society for the Mary I. Sibley Grant in 1949-50, which enabled me to collect part of my material in Chicago.

[1] An earlier version of the chapter on the Kestos and the Leaf-Crown was read at the Fifty-first General Meeting of the Archaeological Institute of America (1949) in Baltimore: *AJA* 54 (1950) 260-61. For suggestions in this chapter I feel indebted to Professor Oscar Broneer and Professor Franklin P. Johnson; also to Dr. Helene Kantor of the Oriental Institute. To Professor Broneer and to Dr. Kantor I also feel indebted for reading the other chapters and making various comments on them.

[2] V. Müller, *Der Polos* 21.

[3] L. B. Holland, "Mycenaean Plumes," *AJA* 33 (1929) 173ff. Apart from the genuine feather crown, Holland discusses as feather crowns those of the Prince of Knossos and of the Lady of the Hagia Triada sarcophagus.

[4] Schliemann (*Mycenae* 187f) was the first to discuss these foils. He thought they were used as half diadems, on the theory that pairs of them were soldered together to form a single diadem. His arguments were based chiefly on the similarity of design between the triangular specimens and the oval diadems. This similarity was good reason for connecting the two; but it was not by itself strong enough to support the weight of such a theory. K. Schuchhardt (*Schliemann's Excavations* 209) showed the impossibility of this explanation. He pointed out that there were too many pieces in question and that an unsightly joint in the middle of the forehead would be an absurdity. Damaging to the theory was also the total absence of perforations at the pointed ends, without which the pieces could not have been tied together to form a single diadem; also the odd number of the specimens. Schuchhardt (*ibid.* 214/83) advanced the theory that the triangular specimens were used as pendants worn round the neck. Studniczka (*Beiträge zur Geschichte der altgr. Tracht* 121/23) had previously regarded similar ones as pendants worn round the girdle. Both failed to produce convincing contemporary parallels. Their views were vitiated by the large number of the objects, some of which would necessarily have to be discarded whether suspended from a girdle or a necklace. Another effort was then made by Staes (*ArchEph* [1907] 41ff) who, for lack of any convincing explanation, advanced the view that the triangular objects, like the diadems and the gold ornaments, were fastened on the coffins in the shaft graves. But the coffin theory, although it had a few followers (Persson, *New Dendra Tombs* 111ff; Evans, *Shaft Graves and Beehive Tombs* 4ff), did not gain general acceptance (Karo, *Schachtgräber* 40 [2] 341; *AM* 40 [1915] 229/30; Wace, *Mycenae* 14 [1]). Lastly, Karo identified the triangular gold foils as parts of royal crowns (*AM* 40 [1915] 177ff; *Schachtgräber*, 182/83). His arguments for their function—including a few additional observations by the writer—are as follows:

Each stephane (diadem) from the first shaft grave is as long as the combined width of the broad ends of nine triangular pieces which correspond to it; and the patterns are similar. The folded broad ends of all the triangular foils suggest fastening by means of a band. In the third shaft grave the single stephane is also as long as the combined width of the broad ends of the seven pieces which have similar patterns. The other seven triangular specimens in this grave have the same dimensions, but different patterns; and no stephane. They form the crown which was worn by the second lady. The crown with the flowers was worn by the third lady of this grave. The broadly folded ends of all the triangular foils from the third shaft grave, and the series of holes on these folded ends, point to fastening by means of stitches or wires once passing through them; a method which provides a better means of connecting that part of the object with the band. The long sides of all the pieces, folded back, or in front, and all strengthened with copper wires inserted into these piped sides, imply that the objects stood upright; and suggest an effort to keep these sides taut. Wires attached about the middle of the long sides of the specimens from the second crown of the third shaft grave (pl. 98, fig. 5c), the one without the stephane, further indicate a precaution taken to obtain greater rigidity by connecting one piece to another. Lastly, holes about half the height of all the specimens from the first crown of the third shaft grave (the one with the stephane, pl. 98, fig. 5b) suggest a similar precaution to the same effect.

Karo suggested the Boston goddess as a good parallel for the leaf-crown. This statuette has sometimes been regarded as a forgery. Mr. Platon, however, has kindly informed me that he was able to trace the accidental discovery of the statuette in Crete, and that he believes it to be genuine. Other examples mentioned by Karo are: the goddess of the Vapheio gem (*ArchEph* [1899] pl. 10,33), and a few terracottas from Aegina (Furtwängler, *Aegina* I, pl. 108,6; pl. 109,10).

[5] *JdI* 55 (1940) 58-89.

North. Riis subsequently showed that the leaf-crown existed in the Creto-Mycenaean area and "in Oriental regions outside the coast-land occupied by the Philistines."[6] Plate 98, fig. 1 shows that this crown in all probability originated in Mesopotamia in Ur III.[7] Riis pointed out the similarity between the leaf-crown worn by the figurines of Astarte (pl. 98, fig. 2) and the crown of Hera-Atargatis on a Roman relief and on coins (pl. 98, fig. 3) struck in the fourth century A.D. at Hierapolis,[8] where the Astarte terracottas were found. The crown of the goddess of Hierapolis has presented a problem. In his work Περὶ τῆς Συρίης Θεοῦ (15) Pseudo-Lucian says that the headdress of this goddess consists of a pyrgos: *ἐπὶ τῇ κεφαλῇ πυργοφορέει, ὁκοίην Ῥέην Λυδοὶ ποιέουσιν.* On the coins, however, the upright projections are definitely pointed. Perhaps to the unfamiliar onlooker of late Antiquity these projections looked like towers and the leaf-crown like a simple variation of the mural crown. The mural crown, however, became fashionable in the Hellenistic period, the leaf-crown was one of the Bronze Age heritages. The same ancient author made the same mistake in another passage (32): *καὶ ἐπὶ τῇ κεφαλῇ ἀκτῖνας τε φορέει καὶ πύργον καὶ κεστόν, τῷ μούνην τὴν Οὐρανίην κοσμέουσιν.* Here the author definitely meant a leaf-crown, not a turreted crown.[9] The second passage, however, presented another problem: the identification of the kestos. Riis pointed out that the aktines and the pyrgos were upright projections stuck on a sort of stephane. He found no explanation for the kestos. He simply refused to accept the view that it could have been the band worn round the chest of the statue as had been previously proposed.[10] The tetradrachms of Demetrios III in the Cabinet des Médailles[11] which reproduce Atargatis of Damascus (pl. 98, fig. 4) give us a good picture of the kestos of this goddess. The upright projections of this crown were fastened on a cloth band round the head, not on the stephane. The stephane was placed outside. Such a band must have been necessary for the fastening of the triangular gold foils found by Schliemann in the two royal shaft graves at Mycenae. In the first shaft grave the three leaf-crowns were almost identical. Plate 98, fig. 5a shows a reconstruction of one of these crowns. Plate 98, fig. 5b-c shows a reconstruction of the two leaf-crowns found in the third shaft grave. These crowns were different one from another. In four out of five leaf-crowns found in the two shaft graves, the stephane was placed outside the lower ends of the upright triangular foils. In one case (fig. 5c) the crown consisted of the triangular foils alone. It was, therefore, worn without stephane.

On this evidence the crown of the goddess of Hierapolis becomes intelligible: its aktines were first fastened on a band. Both ends of this band were first tied back, then they fell together on the nape of the neck (pl. 98, fig. 1) or separately on either side of the neck.[12] They were visible and therefore decorated: [ἱμάς] *κεστός.*[13] The band worn round the chest of Aphrodite was also called kestos (cf. Ξ 214: *ἦ, καὶ ἀπὸ στήθεσφιν ἑλύσατο κεστὸν ἱμάντα ποικίλον, ἔνθα τέ οἱ θελκτήρια πάντα τέτυκτο*). This kestos, however, had nothing to do with the kestos of the leaf-crown.

On the coins of Hierapolis and Damascus the kestos is rendered like two pieces of rope which hang on either side of the head. It strongly resembles the prependulia of a Byzantine crown.[14] It is also visible on some terracotta figurines from

[6] *Berytus* 9 (1949) 82/83. Riis does not mention the triangular gold foils from the first and third shaft graves at Mycenae. He gives other examples: Evans, *PM* II (2) 778, fig. 506 a-b; *BCH* 28 (1904) 386, fig. 22 (explained in another way by Herbig). To these examples we may add the following: Murray, *Excavations in Cyprus* pl. 2 no. 1126; Bossert, *Alt-Kreta* fig. 56 a, and 476 (*Alt-Syrien* fig. 228).

[7] Ward, *The Seal Cylinders of Western Asia* 81, fig. 217 (the band on which the triangular projections are fastened looks like tresses of hair). To be sure, the illustration in this publication is an old drawing.

[8] *Berytus* 9 (1949) pl. 18,3.

[9] Cf. also Macrobius, *Saturnalia* 1.23.19: *Adargatidis simulacrum sursum versum reclinatis radiis insigne est monstrando radiorum vi superne missorum enasci quaecumque terra progenerat.*

[10] Clemen, *Anatolian Studies Presented to Sir William Ramsay* 452, note 3; cf. also Berytus 4 (1937) 15.

[11] Cf. *Syria* 3 (1922) 222, fig. 2; cf. also Zahn, *Anatolian Studies Presented to Sir William Ramsay* 452, note 3; cf. also *Excavations at Dura Europos*, Third Season 1929-30, 107, note 1 (Baur).

[12] The manner of tying a band at the back with one end falling on either side of the neck can be visualized on the analogy of the fillet worn by the two ladies on the relief from Pharsalos (Johansen, *The Attic Grave-Reliefs* fig. 73; Langlotz, *Bildhauerschulen* pl. 10; Hampe in *Winckelmannsprogramm* 1951; Prins de Jong, *Griekse Grafreliefs* fig. 48), and that on the head of the youth in Erbach (Anthes, *Festschrift für Overbeck* pl. 4; Studniczka in *Jdl* 22 [1907] 137—Anadoumenos Capranesi).

[13] Cf. Boisacq, *Dictionaire étymologique de la langue grecque*, *κεστός* = "piqué, brodé," from *κεντέω*. The kestos is also a band worn by boxers.

[14] Whether the prependulia of the Byzantine crown are derived from the kestos of the leaf-crown of late Antiquity directly is a subject on which only a Byzantinist can decide.

Palestine (pl. 98, figs. 6a-b).[15] On these figurines the conventional name "Hathor locks" has been applied to it; but it is clear that it is not hair. It is also visible on the crown of a sphinx on a LM III Cypriote krater (pl. 98, fig. 7).[16]

The kestoi of all these leaf-crowns, worn mostly by the supreme goddess, help us to settle the problem of the peculiar protuberance above the left ear of the limestone head in Olympia (pl. 99, fig. 8a-b).[17] This protuberance has been interpreted on the theory of the cult statue—by Treu and others[18]—as parts of Hera's veil pulled forward by her left hand. On the sphinx theory[19] it has been interpreted as attachments of a wing. By another view, it has been explained as belonging to a floral ornament rising from the crown.[20]

When leaf-crowns are seen in front view, one end of the kestos is seen on either side of the head. A similar projection, therefore, might have existed on the other side of the limestone head; on the part of the crown which is now missing. To be sure, the head is not broken off where this end of the kestos would be expected to come: above the ear. There is no ear on this side of the head. If, therefore, the second end of the kestos was on the part of the crown which is broken off, this end should be higher than the other end; and further back. This hardly makes any difference, since we have other examples with one end of the kestos placed higher than the other (pl. 99, fig. 17). It is possible, however, that the leaf-crown of the limestone head showed only one end of the kestos. The leaf-crown of the sphinx on the terracotta plaque in the Ashmolean Museum (pl. 99, fig. 9),[21] although in front view, shows one end of the kestos. This deviation might be due to the lack of space on the right side of the plaque. For a reason unknown to us the limestone head might also have had only one end of the kestos. One may argue that the kestos would be difficult to render in the soft limestone. To this it can be said that the kestos would not have been very long and probably would have been attached to the hair below.

We may therefore conclude that the protuberance above the left ear of the limestone head belongs neither to a veil nor to an attachment of a wing, but to the kestos of the leaf-crown worn on the head. Leaf-crowns with kestos were worn by Hera. As we shall presently see, they were worn by sphinxes as well. Unlike the leaf-crown of the goddess of Hierapolis, the leaf-crown of the Olympia head shows no stephane; it belongs to the type worn without stephane. A ring of plaited hair takes its place. Perhaps this plaited hair is an allusion to Hera's plaited hair as described in Homer (Ξ 176):

. . . . . χερσὶν πλοκάμους ἔπλεξε φαεινοὺς
καλοὺς ἀμβροσίους, ἐκ κράατος ἀθανάτοιο.

The evidence afforded by the three leaf-crowns of the first shaft grave, the two similar crowns of the third shaft grave (of the old grave circle), and the single leaf-crown of shaft grave E[22] (of the new grave circle), helps us to reconstruct the crown of the cult image of Hera in the most ancient of her sanctuaries in Greece, the Argive Heraion, whence her cult found its way to Olympia.[23] We have two pieces of historical evidence for the crown of the chryselephantine Hera of Polykleitos: 1) Pausanias'

[15] For the Syrian figurines cf. *Berytus* 9 (1949) pl. 17,5; for the Palestinian figurines cf. Demargne, *La Crète Dédalique* 298, fig. 59. Scholars have interpreted the kestos as "Hathor locks" for lack of any other explanation (cf. also Pettazzoni in *Ausonia* 4 [1909] 181ff; *BdA* 1 [1922] 49ff).

[16] Bossert, *Alt-Kreta* figs. 56 a and 476; *Alt-Syrien* fig. 228.

[17] *Olympia Ergebnisse* III, 1-3, pl. 1. For the reproduction of the head in profile I am indebted to Dr. J. Dörig and the German Archaeological Institute in Athens. A leaf-crown is also worn by the fragmentary terracotta head from Olympia which is intimately related to the limestone head (*ibid.* 35/36, pl. 8,1).

[18] Treu, *Olympia Ergebnisse* III, 1-3; Searls and Dinsmoor, "The Date of the Olympia Heraeum," *AJA* 49 (1945) 74.

[19] D. K. Hill, "Hera the Sphinx," *Hesperia* 13 (1944) 353ff; Vacano, *Das Problem des alten Zeustempels in Olympia* 8-20. Vacano considers the Heraion of Olympia to have been originally a temple of Zeus Olympios. This view was not accepted by Searls and Dinsmoor, *op.cit.* 74, or by Kunze, *AuA* 2 (1946, 101, note 11). Dinsmoor and Searls revived Dörpfeld's theory (*Alt-Olympia* 212ff) that Zeus and Hera shared the temple until the fifth century, when Libon's temple of Zeus was built and Zeus moved over. Against this view were Ziehen, *RE* 18, 57ff, and Kunze, *AuA* 2 (1946) 101, note 11.

[20] Langlotz, *Das Ludovisische Relief* 11, note 13: "Auch an der Hera in Olympia und Samos sind minoische Relikte zu erkennen in dem Blütezweig am Polos und in Samos vielleicht gar eine Schlange." Wolters in *Festschrift für Wölfflin* 170.

[21] Terracotta plaque from Crete (seventh century B.C.) no. G 488 (Poulsen, *Der Orient und die frühgriechische Kunst* 148, fig. 173). For the publication of this photograph I am indebted to Mr. Boardman and the Ashmolean Museum.

[22] Six more triangular gold foils were found in shaft grave E of the new grave circle outside the wall of the citadel (cf. *Praktika* [1952] 457/61, fig. 29). They were found along with the stephane. Their workmanship resembles that of the specimens found by Schliemann: their long sides are piped; they are also strengthened with copper wires. The broad ends of all specimens are folded back, and have small holes for wires to pass through. Their apexes lack both holes and attached wires. Lastly, their decoration is similar to that of the stephane with which they were found in a pile.

[23] According to Nilsson (*Geschichte der griechischen Religion*[2] I, 350, 428) the Argive Hera is the palace goddess of Mycenae.

description, according to which the chryselephantine Hera "is seen to wear a crown with Graces and Seasons wrought on it in relief" (2.17); 2) the Argive coins of the Roman period[24] reproducing the statue (pl. 99, fig. 10). The coins show the goddess in a manner minutely corresponding to the Periegesis. They are, therefore, regarded as faithful reproductions of the famous statue. They suggest that the die-sinker was inspired directly by the statue. But they leave one detail difficult to comprehend: the crown. At first sight the crown on the coins seems like a turreted crown. But mural crowns were a Hellenistic innovation. What is more, the upright projections, looked at carefully, seem too pointed to represent towers. No explanation of this difficulty has ever been offered, and the heads on the obverse of certain coins of Argos struck in the fourth century B.C.[25] were regarded as reproducing the head of the statue of Polykleitos (pl. 99, fig. 11). On the Argive coins, however, the heads wear a flat round cap with floral, not figured decoration; and, according to a recent view (Ervin), "it is unlikely, although of general belief, that the coins of the fifth and fourth centuries B.C. represent the Hera of Polykleitos."[26] Since Pausanias definitely states that the crown of this goddess showed figures of Seasons and Graces, these heads cannot by any means represent Polykleitos' statue. Pausanias says (2.17) that the figures were carved in relief: *ἔπεστι δὲ στέφανος Χάριτας ἔχων καὶ Ὥρας ἐπειργασμένας.*

If our view is correct, each figure was worked on a single upright projection of a leaf-crown. The Graces and the Seasons would require six or seven upright projections altogether. The crown on the coins of the Roman period would therefore reproduce a leaf-crown; and Pausanias' description would conform with the evidence of these coins.

Polykleitos, therefore, does not seem to have invented a new type of crown. This type existed already in the Mycenaean period and persisted in the historical era from fidelity to old religious models. Polykleitos, however, was perhaps responsible for the figured decoration with which its parts were embellished. He put the Graces and the Seasons, who were thought to have attended the marriage of Zeus and Hera,[27] on the crown over her head. On the uppermost part of the throne of the classic image of Zeus in Olympia, above the head, Phidias had also made the Graces on the one side and the Seasons on the other (Pausanias 5.11.7): *ἐπὶ δὲ τοῖς ἀνωτάτω τοῦ θρόνου πεποίηκεν ὁ Φειδίας ὑπὲρ τὴν κεφαλὴν τοῦ ἀγάλματος τοῦτο μὲν Χάριτας, τοῦτο δὲ Ὥρας, τρεῖς ἑκατέρας.* The Graces and the Seasons above the head of the Phidian Zeus and those of the crown of the Polykleitan Hera may imply a certain tradition regarding the divine pair.

How far the tradition of the Late Bronze Age lived on in the historic era in Greece will be fully discussed by Benson in his forthcoming study. As to the crown, however, we may venture to say that there are two main types of it represented in Greek historic times. Type I shows the kestos, on which the upright projections are fastened. The stephane in this type is placed outside the lower part of the projections, or it is omitted. Type II shows no kestos; the upright projections are stuck directly on a high or low stephane. This type was known as kalathos and is worn both by mortals and immortals.

Type II is a prehistoric Greek as well as a Near Eastern type. Plate 99, figs. 12a-b show Near Eastern examples of the Iron Age, which probably developed from type I.[28] On type II the Greeks could have drawn during the Bronze Age and the Iron Age; but they may also have developed it themselves from type I. That the leaf-crown continued uninterruptedly from the Late Bronze Age into the Iron Age can be shown by the leaf-crown worn by the Proto-geometric goddess of the Giamalakis Collection in Herakleion[29] (pl. 100, fig. 13). The illustrations of this terracotta show no kestos. It may, however, have been omitted by the artist, or it may be seen on the nape of the neck. In any case, the figure is evidence that the leaf-crown continued without break. In the leaf-crown represented

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Kunze in *AnA* 2 (1946) 101, calls the Olympia Hera "Argive." For the historical continuity in the Argive Heraion cf. Blegen in *AJA* 43 (1939) 410/44.

[24] Imhoof-Blumer and Gardner, *Numismatic Commentary on Pausanias*, Argos no. 15; Gardner, *Types of Greek Coins* 137, pl. 8, no. 13; Frazer, *Pausanias* III, 185, fig. 30; *JHS* 21 (1901) pl. 3 no. 9; Waldstein, *The Argive Heraion* fig. 11 b.

[25] Imhoof-Blumer and Gardner, *op.cit.* Argos no. 14; Seltman, *Greek Coins*[2] pl. 36 (5-8); Lacroix, *Les reproductions des statues sur les monnaies grecques* pl. 21 (5, 7).

[26] Πελοποννησιακά 2 (1957) 425.

[27] Hanfmann, *The Season Sarcophagus in Dumbarton Oaks* 80.

[28] Ward, *op.cit.* 208, fig. 622; 210, fig. 631.

[29] Alexiou in *Kretika Chronika* 4 (1950) 441ff, fig. 9, pls. ΚΘ′, Α′.

on a shield from the Idaean cave (pl. 100, fig. 14) the kestos looks like hair. It spreads along the shoulders and upper arms of the naked goddess and may also be hair. In the crown of the Argive Hera there must have been a kestos. The limestone head in Olympia has it; and the cult of Hera is thought to have been transplanted to Olympia from Argos. On the Roman coins of Argos the kestos is not clearly seen; and the die-sinkers probably sacrificed it to the clarity of the composition. It might be argued that Polykleitos adopted type II. In view of the statement by Pseudo-Lucian that with the kestos *μούνην τὴν Οὐρανίην κοσμέουσιν*, this is rather unlikely. Polykleitos had to stick to type I.

Leaf-crowns are worn by sphinxes. We have seen one on the sphinx on the LM III Cypriote krater. The same crown occurs in Iron Age sphinxes as well; but usually one cannot tell whether the leaf-crown is of type I or type II (pl. 100, fig. 15).[30] It is definitely seen, however, on a sphinx on the Cretan terracotta plaque in the Ashmolean Museum (pl. 99, fig. 9).

Apparently type I never died out in the Eastern Mediterranean basin during antiquity. It must also have been worn by the cult-image of Rhea in Lydia. As stated by Pseudo-Lucian, her crown was similar to that of Hera Atargatis.

THE RELIEF ON THE BOEOTIAN PITHOS IN ATHENS

On the well known relief of the Boeotian pithos in Athens (pl. 100, fig. 16)[31] the goddess wears a leaf-crown with kestos. The kestos springs like vine branches with grapes at intervals, a change due to a wish to emphasize the fertilizing and other benevolent powers of the goddess. A similar rendering on an Assyrian cylinder seal (pl. 100, fig. 17)[32] has been explained by Ward as "strange feathered curls on each side of the head." The crowns of the Boeotian relief and the Assyrian seal are surely leaf-crowns of type I. That the crown of the Boeotian relief is a direct survival from the vanished Mycenaean civilization is suggested, a) by the two lions which flank the goddess, b) by her garment, and c) by her attitude.

The lions on this relief are unlike all other eighth and seventh century lions.[33] They are linked with the lions of the Lion Gate;[34] besides being placed heraldically, they stand on their hind legs, and have both forelegs on a higher level. This type is a sporadic survival of the Lion Gate type. It can be explained as a hieratic survival.[35]

The second element which seems to come from Mycenaean culture is the short-sleeved and beltless chiton of the goddess. This chiton can be equated with the "Achaean chiton," that is the chiton which is older and quite different from the Doric and Ionic chitons. Its occurrence in Crete and Boeotia has suggested to Levi[36] and Lorimer[37] a connection with the chiton of the female figure on the Warrior Vase. According to Lorimer, this chiton was fully in vogue during the Late Helladic period.[38] It differed from the Minoan close-fitting jacket and the bell-skirt, it had developed from a native Middle Helladic costume, and its occurrence in the Orientalizing period was to be explained as a survival of the Bronze Age culture. We may add one detail: in historic times this chiton was never worn by ordinary persons.

The view that the costume of the goddess on the Boeotian relief is a legacy from the culture of the Late Bronze Age can be supported by the garment of the goddess on a similar pithos relief found in Tenos.[39] The chiton of this goddess shows a vertical band in front. This band can be set side by side with

[30] *Annuario* 10-12 (1927-29) 323, fig. 420a; 324, fig. 420b; cf. also Hogarth, *Hittite Seals* 71 no. 184 (Cilician); for Assyrian sphinxes wearing leaf-crowns cf. Ward, *op.cit.* 206, fig. 603; cf. also the sphinxes on the sherd from Alişar (Akurgal, *Phrygische Kunst* pl. 32 b.

[31] Athens 355 found at Thebes: *ArchEph* (1892) pls. 8/9; Hampe, *Frühe griechische Sagenbilder* 56; F. R. Grace, *Archaic Sculpture in Boeotia* fig. 9.

[32] Ward, *op.cit.* 211, no. 642: the crown is worn by a giant attacked by gods.

[33] On the association of the lions and the Mother goddess cf. Prinz in *AM* (1910) 167; cf. also Baur, *Excavations at Dura Europos*, Third Season 1929-30, 127ff.

[34] Wolters, *ArchEph* (1892) 215, noticed the similarity between the lions of this relief and those of the Lion Gate. He connected them, however, with the lions of the Analatos hydria. A few examples of lions of the Lion Gate type: *BSA* 7 (1901) 29, fig. 9; *PM* III, 463, fig. 323; *PM* IV, 170, fig. 133 a b c; *JHS* 45 (1925) 66, fig. 56; Nilsson, *Geschichte der griechischen Religion*[2] I, pl. 21.1; Demargne, *La Crète Dédalique* 290, fig. 56. This type shows lions with both forelegs placed on a higher level than their hind legs.

[35] For the Mycenaean ruins visible in classical antiquity cf. R. M. Cook in *BSA* 50 (1955) 266/67.

[36] *Annuario* 10/12 (1927/29) 536; cf. also Demargne, *op.cit.* 288: "Notons par ailleurs que la *πόρπα* est très régulièrement vêtue dans l'art préhellénique."

[37] Lorimer, *Homer and the Monuments* 368.

[38] According to Vallentine Müller, *AM* 43 (1918) 154, this garment showed Hittite influence; against this view, Karo, *Schachtgräber* 182.

[39] *AA* (1939) 259, fig. 16; *BCH* 62 (1938) 479, fig. 34. The lions on this relief follow an orientalizing tradition: one of their forelegs is raised.

the familiar bands of the Late Helladic period, for instance those on the garments of the female figures on fresco fragments from Tiryns[40] and Mycenae,[41] and others.[42] As will be shown, this band was probably called, in historic times, *exastis*. Perhaps in the Bronze Age it originated as a means of concealing a front opening. At any rate, the Tenos relief shows it; but the Boeotian relief does not. The latter probably had no front slit, an Iron Age modification. The former might not have had a front slit either; and its band was of purely decorative character; another Iron Age modification closer to the Mycenaean tradition than that of the Boeotian pithos.

The decoration of the garments of the two goddesses on the pithos reliefs is composed of circles in diamond patterns. This decoration is common in archaic Greek textiles.[43] It seems, however, to have been also common in Near Eastern textiles, as the garments of the king at Bor and Ivriz show. These garments, Barnett remarks, "remind us that the Phrygians were famous in antiquity as the inventors of embroidery."[44] One might, therefore, conclude with some safety that the material of the garments of the two goddesses on the two reliefs was either imported from the Orient, or was made in imitation of oriental textiles.

A goddess in similar dress, i.e. in a short sleeved Achaean chiton, appears on a third pithos relief, in Boston.[45] Instead of circles in diamond patterns, however, the garment of this goddess shows small discs or rectangles placed at irregular intervals from one another. These tiny discs and rectangles enable us to understand the function of the numerous gold discs found in the third shaft grave.[46] These discs, though regarded as parts of the decoration of the garments of the Mycenaean ladies,[47] have not been associated with the Achaean chiton. Kurt Müller believed that the royal ladies were buried in peploi,[48] but his view, based on the pins of the grave, was soon disregarded. Karo favored the view that the ladies of Mycenae were buried in Minoan costumes and took the pins to be hairpins.[49] Wace also thought that the Mycenaean royal ladies were buried in Minoan costumes, but suggested that some of the pins were probably used to stiffen the front of the Minoan jacket.[50]

Karo's hairpin theory seemed more plausible to Lorimer. But Lorimer finally admitted that "though it is true that almost anything can be worn on a head dressed with sufficient elaboration, they (three of the pins) do not look like hairpins."[51] According to Jacobsthal, the authority on pins, two of the pins from the third shaft grave could be considered as the "forerunners of the sub-Mycenaean pin type."[52] Jacobsthal, however, did not discuss the problem of the dress of the ladies buried in the third shaft grave.

The Achaean chiton may now offer the answer to this question. If the garment of these ladies was the Late Helladic III costume, some of the pins could have been used to fasten its front opening. This opening, as a rule, would have a band in front, and this band, as a rule, would show a different treatment from the rest of the garment. The variety of the shape of the discs of the third shaft grave—some are like leaves—their difference in size, and in pattern, answers the requirements of the different treatment of this band. We may surmise that, when the ladies of Mycenae were alive, they could wear the Minoan costume with the close-fitting jacket and the bell skirt as an alternative to the traditional Achaean chiton; but when they were laid in their royal graves, the prescribed attire must have been the native Achaean chiton.

That the gold discs of the third shaft grave

[40] *AM* 36 (1911) 201, fig. 2; *PM* IV, 824, fig. 804; *Tiryns* II, 98, fig. 40, pl. XII; Lorimer, *op.cit.* fig. 44; Bossert, *Alt-Kreta* fig. 32. The band is visible on the fragment itself. The restored part, however, does not show it.

[41] *AA* (1953) 27/28, fig. 1. This fresco is very fragmentary.

[42] The gold ring from Tiryns: *AM* 55 (1930) Beilage 30, 2; Nilsson, *Geschichte der griechischen Religion*[2] I, pl. 16,4. The Hagia Triada sarcophagus: Bossert, *Alt-Kreta* fig. 250. For other examples cf. also Bossert, *ibid.* fig. 458; *AJA* 52 (1948) pl. 6 a.

[43] Herion in *Hesperia* 21 (1952) 277.

[44] Barnett in *JHS* 68 (1948) 9. For similar textile cf. the garment (skirt) of the four-winged human figure on a Late Assyrian cylinder seal (Wiseman and Forman, *Cylinder Seals of Western Asia* pl. 70). For the influence of oriental textiles in Early Greece cf. also Schweitzer in *AM* (1918) 140(1). For embroidered patterns cf. Barnett *op.cit.* 9, note 50.

[45] Hampe, *op.cit.* pl. 37.

[46] Karo, *Schachtgräber* pls. 28/29.

[47] Perrot-Chipiez VI, 336-37; Schuchhardt, *op.cit.* 226. Similar gold ornaments were found in a chamber tomb at Mycenae by Tsountas, and were sewn on a band (cf. Tsountas, *Μυκῆναι, Μυκηναϊκὸν Πολιτισμός* 70). Staes, *ArchEph* (1907) 35, and Karo, *AM* 40 (1915) 187/88, explained the discs differently. Some of the discs preserve holes. Since they were part of sepulchral attires, they did not have to be tightly fixed on the garment.

[48] Kurt Müller in *JdI* 30 (1915) 298ff.

[49] *Schachtgräber* 187.

[50] Wace, *A Cretan Statuette* 10.

[51] Lorimer, *op.cit.* 364.

[52] Jacobsthal, *Greek Pins* 1 (1). Jacobsthal thinks that the similarity is accidental, but only because of the great interval of time.

formed part of the decoration of the royal dresses can also be inferred from Epic. In Ξ 178/80 the sentence *τίθει δ' ἐνὶ δαίδαλα πολλά*, though thought to mean embroidering on Hera's dress, or woven figure patterns, remains obscure. Lorimer admitted that the word for weaving is *ἐμπάσσειν*; and suggested that "this weighs slightly in favour of giving *τίθει* a different meaning."[58] The numerous gold discs of the third shaft grave bring out well the real meaning of the word. *Ἐντιθέναι* means to fasten on, to fix on. It implies not embroidered or woven decoration, but applied decoration of metal pieces shaped and very likely ornamented (daidala). The word *πολλά* corresponds to the great number of the gold discs found in the shaft grave.[58a]

The Boeotian pithos relief, therefore, justifies the foregoing hypothesis. Some of the discs on the garment of the goddess of this relief in Boston, as well as those of her attendants, have similar patterns to those found in the third shaft grave (rosettes, wheels, stylized octopus patterns). The irregular intervals between these discs suggest that they were not woven or embroidered patterns. The garment of this goddess, therefore, seems to go straight back to the Mycenaean tradition. The fashion in which golden ornaments were fastened to a textile was also known in the Near East in the first millennium B.C.[58b]

In the forementioned passage Homer says that Hera's dress *χρυσείῃς δ' ἐνετῆσι κατὰ στῆθος περονᾶτο*. This implies that the goddess fastened the front slit of the head opening of her dress with gold pins. Her dress must therefore have been the Achaean chiton. Homer goes on to say that Hera put on a belt. Since the Achaean chiton shows no belt, there seems to be only one explanation: Hera's dress described in this passage is not the genuine Achaean chiton of the Late Bronze Age, but a modification, probably made in the early Iron Age: the addition of a belt. On this topic we shall have more to say later on.

When the pithos in Athens was first published by Wolters,[54] the figure was interpreted as Artemis-Eileithyia, Λεχώ-Λεχαία. Wide interpreted the scene as a dance performed in the presence of a goddess,[55] Levi suggested Hera flanked by the Kouretes,[56] Langlotz saw a ritual bath of a goddess,[57] and Kontoleon proposed Artemis escorted by Arge and Opis.[58]

The Λεχώ-Λεχαία theory was immediately refuted on grounds of medical observations.[59] The dance theory failed to explain the disconnection of the two dancers, and their holding the goddess so tight. The Kouretes theory offered no explanation for the feminine appearance of the Kouretes. The view of a ritual bath was refuted by the presence of the sleeved chiton and the crown. And the Arge-Opis theory did not explain the attitude of the arms of the two nymphs.[60]

The attire and the attitude of the goddess offer the clue to the subject. We have a central figure. This figure wears the Achaean chiton, which is of remote antiquity; and is probably consecrated attire. She also wears the leaf-crown with the kestos—a consecrated headdress. Her attitude is also consecrated: arms extended with forearms raised. This attitude in male figures has been shown by Kunze to be the attitude of *Ζεὺς Ἐπιφαινόμενος*.[61] The goddess of the Boeotian relief may also be looked at as epiphainomene: the *Οὐρανίη*, according to the kestos of her crown, the goddess who is manifesting herself to her worshippers, and is receiving adoration by them. Goddesses with arms in this position, "to greet the worshipper,"[62] according to Evans, are common during the Late Bronze Age (pl. 100, figs. 18, 19, 20).[63] They also continue in the early

[58] Lorimer, *op.cit.* 379 (1).

[58a] The garment of the goddess on the Tyryns ring (*AM* 55 [1930] Beilage 30, 2) seems to be decorated with small applied ornaments.

[58b] Helene Kantor in *JNES* 16 (January 1957) 1ff. For metal ornaments sewn into textiles cf. also Barnett in *BMQ* 27 (1960) 29. For other references in literature cf. Herodotus 9.80 (Xerxes' tent) and II Sam. 1:24 (women's garments).

[54] *ArchEph* (1892) 225ff. [55] *AM* 26 (1901) 253ff.

[56] *AJA* 49 (1945) 323ff.

[57] Langlotz, *Das Ludovisische Relief* 18.

[58] Kontoleon, "*Παράστασις ἐκ τῆς Μυθολογίας τῆς Δήλου*" in *Ἀφιέρωμα εἰς Ἄμαντον* 435ff.

[59] Morgoulieff, *Études critiques sur les monuments représentant des scènes d'accouchement* (Paris 1898).

[60] Jörg Schäfer, *Studien zu den griechischen Reliefpithoi des 8-6 Jahrhunderts* 82.

[61] Kunze, "Zeus Ἐπιφαινόμενος," *AuA* 2 (1946) 98ff. Matz, "Götterscheinung und Kultbild in minoischen Kreta," 34ff (cf. *AbhAkMainz* [1958]), connects it with the Invocation Dance. Kunze's view (*op.cit.* 100) that arms in this position are connected with the epiphany of the divinity, as well as with the emotion of the worshipper following the epiphany, will stand (for other views cf. Alexiou in *Kretika Chronika* 12 [1958] 243ff).

[62] *PM* III, 472.

[63] Cf. the thorough work of Alexiou "Ἡ Μινωϊκὴ θεὰ μεθ' ὑψωμένων χειρῶν," *Kretika Chronika* 12 (1958) 179ff. Alexiou favors a Mesopotamian derivation of this attitude. The Mesopotamian examples he presents, however, are not quite

Iron Age. We find them in the Protogeometric period (pl. 100, figs. 13, 21); and subsequently.[64]

The sacred figure on the Boeotian relief is accompanied by two rearing lions. According to Levi, in the Late Bronze Age "the motive of the epiphany also appears associated with the motive of the two rampant lions flanking the divinity";[65] and as such he explains the well known signet type from Knossos.[66] But the sacred figure on the Boeotian relief does not seem to be either standing or walking. We get the impression of an *ἀρχαῖον ἕδος* in the attitude of receiving adoration, either lifted or carried by two side figures who hold it tight. The attitude of the side figures may be thought of as the attitude of lifting or carrying, on the analogy of a similar scene depicted on coins of North Greece.[67]

The side figures on the Boeotian relief are on a smaller scale than the sacred figure. This implies that they are human persons. Their Achaean chiton, however, suggests that they are ministrants engaged in a religious duty. The inventory inscription of Samos[68] informs us that Hera's priestess had sacred garments, called *ἐνδυτά*, which belonged to the kosmos of the goddess.

A scene, therefore, connected with certain rites of the cult-image of the supreme goddess of Boeotia offers itself as best. The supreme goddess of Boeotia was Hera; and rites of Hera's cult image are recorded by Pausanias (9.3.7) in Boeotia: *τὸ δὲ ἄγαλμα κοσμή [σαντες καὶ κομί] σαντες παρὰ τὸν Ἀσωπὸν καὶ ἀναθέντες ἐπὶ ἅμαξαν γυναῖκα ἐφιστᾶσι νυμφεύτριαν*. The words *κοσμήσαντες*, *ἀναθέντες* and *ἐφιστᾶσι* refer to the Boetians in general. The two side figures of the Boeotian relief may be thought of as *λουτρίδες* or *πλυντρίδες*, on the analogy of the similar cult and festival in Athens (Phot. *λουτρίδες*: *δύο κόραι περὶ τὸ ἕδος τῆς Ἀθηνᾶς, ἐκαλοῦντο δὲ αὗται καὶ πλυντρίδες*).

The Boeotian pithos, therefore, could be explained as a vessel used in the cult of the Boeotian image of Hera.

THE HORNED MITRĒ AND THE KREDEMNA

The oldest and most prevalent theory (Treu[69] and A. B. Cook[70]) sees in the headdress of the cult-image of the Samian Hera a polos, a pair of horns, and a veil. While the polos of this headdress has never been questioned, the horns and the veil were explained in different ways. The horns were explained by a second theory as snakes.[71] A third theory explained them as a floral ornament attached to the polos.[72] The veil, in a fairly recent view, was explained as lateral masses of hair.[73]

According to the view at present generally accepted, the horned helmet existed in Greece in prehistoric times in two main types, the two-horned and the four-horned helmet.[74] According to Lorimer, "the two-horned helmet is illustrated by the pair of leaden horns from the king's tomb at Dendra, and by the Warrior Vase, the four-horned helmet by the sherd from Mycenae, and the contemporary Shardan helmet."[75] Apart from this classification another division may be made. On the basis of Kukahn's classification[76] of the non-horned helmet, we can distinguish the one-piece horned helmet and the built-up horned helmet. The one-piece horned helmet shows a conical, or beehive, skull-cap; horns, two or four, rising from the cap, or on top; and usually two chin straps and a knob on top of the skull-cap. The built-up horned helmet shows rolls in tiers, possibly padded, usually chin straps, as well as a knob on top of the uppermost roll; and two or four horns. Plate 100, fig. 22, illustrates a built-up horned helmet.

A third classification may also be made. We can distinguish 1) the horned helmet with horns rising at the bottom of the skull-cap[77] or slightly higher up, and 2) the horned helmet with horns placed on top of the skull-cap. The latter variety occurs in the

convincing. The Cretan origin (Matz, *op.cit.* 35) seems more plausible.

[64] Cf. Alexiou, *op.cit.* 275ff.

[65] *AJA* 49 (1945) 303.

[66] *BSA* 7 (1900/01) 29, fig. 9; cf. also *PM* III, 463, fig. 323.

[67] *JdI* 26 (1911) 105, fig. 34; Gardner, *Types of Greek Coins* pl. 3,6.

[68] Michel, *Recueil* no. 832; Curtius, *Inschriften und Studien zur Geschichte von Samos* 10/11; Ohly, *AM* 68 (1953) 46/48.

[69] *Ergebnisse* III, 1; Roscher *Lexikon* I, 2108.

[70] *Zeus* I, 444/45.

[71] Head, *BMC* Ionia 380; Imhoof-Blumer (*Kleinas. Münzen* I, 104, no. 4, pl. 3,36) also saw a serpent on the polos of the goddess; cf. also Wolters (*Festschrift für Wölfflin* 171) and Langlotz (*Das Ludovisische Relief* 13, note 1); also *RE* VIII, 379.

[72] Lacroix (*op.cit.* 212) favoured Head's view, but expressed doubts about the correctness of this view ("Nous nous demandons, toutefois, s'il s'agit bien d'un serpent"); and proposed that a floral ornament might have been attached to the polos.

[73] Ohly, "Die Göttin und ihre Basis," *AM* 68 (1953) 39: "die Haarmasse steht wie nach hocharchaischer Manier beiderseits des polos-gekrönten Hauptes in steifen Bögen ab."

[74] For complete bibliography cf. Lorimer, *op.cit.* 239ff.

[75] *ibid.* 241, note 2; cf. also Reichel, *Homerische Waffen*[2] 107.

[76] Kukahn, *Der griechische Helm* (Marburg-Lahn 1936).

[77] Cf. the Warrior Vase (Wace, *Mycenae* fig. 82 a-b).

Shardan helmet,[78] in a horned helmet from a chamber tomb at Mycenae,[79] and also in Anatolia. There is also 3) a horned helmet with horns rising near the base, slightly higher up, and also on top of a built-up helmet.[80] This is rather Anatolian. Horns placed at intervals are agreed to be a dominant feature in Mesopotamian horned helmets and horned mitrai. Near Eastern horned mitrai are often provided with side pieces. These pieces could be locks of hair or cloth bands.[80a]

The two-horned helmet is generally equated with the *κυνέη ἀμφίφαλος*, the four-horned with the *αὐλῶπις τρυφάλεια*. Hector's helmet in Λ 350/53, spoken of as *αὐλῶπις τρίπτυχος τρυφάλεια* (*ἐρύκακε γὰρ τρυφάλεια τρίπτυχος αὐλῶπις, τήν οἱ πόρε Φοῖβος Ἀπόλλων*), can be illustrated by a three-tiered four-horned helmet, something on the analogy of the fragment from Mycenae (cf. pl. 100, fig. 22). Scholars have assumed that the horned helmets described in Epic have survived the impact of the Iron Age mainly because of verbal fidelity. Lorimer suggested that the horned helmets were found "principally in Ionian and Etruscan Art" in historic times; and that their home, that is the home of the *φάλοι*, was Anatolia.[81] Horned helmets, however, seem to be known in several parts of the Greek world.[82]

In Anatolia, however, as well as in the Near East (Mesopotamia, etc.), the horned helmet was in general a mark of divinity. It was a horned *mitrē*. Of such divine character must be several monumental and highly stylized terracottas, which have so far remained among the problematic objects of Minoan Art. Three of these objects are now in the Museum of Herakleion and come from the cave of Patso. They have a stem in the middle (pl. 100, fig. 23) and "two sacred objects,"[83] according to Evans, between the horns. A couple of similar terracottas in the Pigorini Museum in Rome[84] have a pile of rolls one on top of the other, but no sacred objects between the horns and the pile. The Herakleion terracottas seem to be highly stylized monumental horned helmets of the single-piece type. They are provided with a skull-cap, two horns, and a pair of chin-straps folded between the horns and the skull-cap. On the analogy of other known examples (pl. 101, fig. 25a-b), we may restore the top of the skull-cap with a knob.

These terracottas were found in the cave of Patso. They must be votive offerings to the Patso deities. The terracottas in the Pigorini Museum come from the votive deposit of Hagia Triada. They are votive offerings, too. They belong, however, to the built-up horned helmet, the helmet which is composed of successive tiers, possibly padded.

Certain linear A and B signs (pl. 101, fig. 24) are cognate to the single-piece and the built-up type of horned helmet. Evans thought that these signs represented horned helmets.[85] He also thought that they were related to the "sheep-bells," which he took to represent horned helmets. Subsequent discussions left these signs problematic,[86] but Platon finally showed that some of the "sheep-bells" were horned masks.[87] These signs show a skull-cap, single or in tiers, sometimes surmounted by a knob, usually two chin-straps, and two horns on the cap.

[78] Lorimer, *op.cit.* pl. 4,1, pl. 5; *PM* I, 665, fig. 489.

[79] Wace, *Chamber Tombs of Mycenae* (Tomb 518) pl. 38; *Mycenae* fig. 78 b.

[80] Cf. the faïence fragment from Mycenae (Lorimer, *op.cit.* 241, note 2, pl. 15, 4). This helmet must be restored as a built-up helmet with four, not five horns. On top of the uppermost roll there should be a knob placed on a bar. Single horns representing a pair occur only when the helmet is seen in profile, never when the helmet is in front view.

[80a] Cf. Frankfort, *Cylinder Seals* pls. 19a, 21i, 22a; cf. also M. A. Groenewegen-Frankfort, *Arrest and Movement* pl. 63c.

[81] Lorimer, *op.cit.* 240; cf. also Kunze, *Kretische Bronzereliefs* II, Beilage 7 (this bronze is considered to be Urartian). Poulsen *op.cit.* 128, fig. 141.

[82] The helmets with horns and ears of oxen reproduced on a sherd from Lindos have been connected with the helmets which are mentioned by Herodotos (7.76; cf. Blinkenberg *Lindiaka* II-IV, 40, fig. 25; Lorimer, *op.cit* 240, note 2). The sherd, however, is Attic. A similar helmet with ears of oxen seems to be worn by a local Cypriote warlike deity on the reverse of a fourth century B.C. coin of Cyprus (Seltman, *Greek Coins*[2] pl. 31, no. 15). This deity shows archaistic features (layer hair) and may, therefore, be thought to belong to an early cult-image (Shaeffer, *Enkomi-Alasia* 63, says that the principal deity of Alasia was "un dieu a cornes," Apollon-Alasiotas perhaps). A helmet worn by an Amazon on a rf. dinos (Pfuhl, *MuZ* fig. 508 a) shows a pair of horns. An Early Corinthian aryballos (*AA* [1936] 350, fig. 5, no. 5) with a nude man in a horned helmet chased by a sea-monster may picture a hero of non-Greek stock; it may equally well be a sporadic survival of the Bronze Age horned helmet; cf. also Dessene, *Le Sphinx* 201, pl. 37 a. For additional bibliography cf. Weill in *BCH* 73 (1959) 439.

[83] Evans, "Tree and Pillar Cult," *JHS* 21 (1901) 136, fig. 19; Nilsson, *Geschichte der griechische Religion*[2] I, 272, pl. 5,7.

[84] Borda, *Arte Cretese-Micenea nel Museo Pigorini di Roma* pl. 48.

[85] *PM* IV, 688ff (the horned head-piece).

[86] Chapouthier, "Les écritures minoennes au Palais de Mallia," *Études Crétoises* II (Paris 1930) 59/61; Picard, "Sur un signe d'ecriture minoenne," *ArchEph* (1937) I, 83/91.

[87] *Mélanges Charles Picard* (1949) 833ff (Platon's arguments were based on the find from Poros near Herakleion).

Few of these signs show traces of boar's tusks in successive tiers.

The votive terracottas in Herakleion, as well as those in Rome, may not be thought of as ordinary horned helmets, but as marks of divinity. They have to be treated as votive horned mitrai. They are symbols of divine power, and on the evidence at present available, we may assume that they were marks of the warrior-god and the warrior goddess of Patso and the divine pair of the Palace of Knossos. Votive horned mitrai were common in the Near East, and were sometimes placed on top of shrines.[88] Whether the Minoan "horns of consecration," often placed on top of shrines, are an abbreviation of the divine horned mitrē and, like the double axe, one of the symbols of power of the divine pair of the palace of Knossos,[89] is a suggestion which cannot be verified.

Horned mitrai are also encountered in Cyprus. We see them depicted on Cypriote cylinder seals,[90] worn by female deities in a highly elaborate fashion. On these seals, however, instead of the usual chin-straps, the horned mitrai are provided with side-pieces of cloth fabric hanging down either in pairs, when the mitrai are rendered in front view, or single, when the mitrai are rendered in profile (pl. 101, fig. 25a-b). Most of these goddesses in horned mitrai are Nature-goddesses: they are lion-guarded. Nature-goddesses armed with helmet and spear existed in the Bronze Age pantheon in Greece.[91] They seem to be more or less related to the main female divinity of the eastern Mediterranean basin, Astarte. Astarte, apart from being associated with nature, had also a strong warlike character.[92] We see her nude with the leaf-crown on her head (cf. supra, first section), usually with the kestos; or brandishing a spear and wearing a horned helmet (pl. 101, fig. 26).[93] This helmet shows a polos with a rather pointed termination probably taking the place of the ordinary knob, a pair of horns, and two cloth-like pieces hanging behind the head in a pair.

With all due allowance for difference of place and date, these horned mitrai bring us to the headdress of the cult-statue of Hera of Samos. That this headdress is a horned mitrē may be seen by the elements composing it. In the reproductions of some Roman coins (pl. 101, fig. 27)[93a] we see a) a cap, b) a pair of horns, c) a bulky termination of the cap, and d) a pair of cloths, one hanging on either side of the head. Essentially this headdress does not differ from the headdress of the warlike Astarte or that of the Cypriote Nature-goddesses. The bulky termination of its cap, however, sets this horned mitrē apart from all horned mitrai of the second millennium B.C. "Presque tous les pompons de l'art néo-hittite ont des dimensions exagérées," Akurgal has remarked, speaking of the style of the neo-Hittite horned mitrai.[94] The horned mitrē of the Samian Hera might, therefore, date from the neo-Hittite period. If this view is correct, we have to face the following questions: 1) Was the horned mitrē and the major part of the kosmos made in the neo-Hittite period? Or was the image as well as the kosmos made earlier, and the kosmos partly renewed in this period? 2) Did the Roman die-sinkers reproduce the old neo-Hittite horned mitrē? Or a subsequent modification? The evidence at present available does not allow any definite answer to these questions.

In the reproductions of the Samian Hera (pl. 101, figs. 27-31) the pieces of cloth are sometimes short, at other times long and reaching the waist. On the evidence of the inventory inscription they may be identified as the *κρήδεμνον*. In Epic a phrase used of kredemna is *ἄντα παρειάων σχομένη λιπαρὰ κρήδεμνα* (*α* 334, *π* 416, *φ* 65). The various reproductions of the cult-image of Hera not only justify the expression *ἄντα παρειάων*, they also correspond to the use of the plural *κρήδεμνα* to denote a single piece of cloth. We may therefore conjecture that

[88] Cf. the Babylonian kudurru in the British Museum (no. 102-485): H. R. Hall, *Babylonian and Assyrian Sculptures in the British Museum* pl. 10 (cf. also Götze, *Hethiter, Churriter, Assyrer* pl. 57).

[89] Evans, *BSA* 9 (1902/03) connected the cult of the warrior god found in Patso with known Hittite cults. He suggested that the warrior god and goddess, usually lion-guarded, "must be identified with the same divine pair of whose cult in the Minoan Palace of Knossos so many records have already come to light." In the male god Evans saw elements of the cult of Teshub or Adad (*PM* IV, 46), and found that in Anatolia this cult was "perpetuated by the abiding cult of the Zeus of Labranda and of Dolichê to the latest classical Age."

[90] *AJA* 52 (1948) pl. 8, nos. 10/11,13; pl. 9, no. 17.

[91] For the Bronze Age warlike goddess cf. Levi, *AJA* 49 (1945) 297; Nilsson, *op.cit.* I, 294; Evans, BSA 9 (1902/03) 59, fig. 37; Hogarth, *BSA* 17 (1910/11) 265, fig. 2. For the types of similar goddesses in archaic Greek art cf. Nilsson, *op.cit.* I, 308.

[92] For similarities in literature between the cult of the Samian Hera and the cult of Astarte cf. *Zeus* I.

[93] Albright, *The Archaeology of Palestine* (Pelican Series A 199) 101, fig. 23 (dated ca. 1300 B.C.).

[93a] I should like to thank Mr. Collin M. Kraay for permission to publish the coin of Samos in the Ashmolean Museum.

[94] Akurgal, *Remarques stylistiques sur les reliefs de Malatya* 23.

the kredemna or the kredemnon was a long piece of fine cloth, placed on top of the head and falling half on the right side, half on the left. Though one piece, it was actually seen as a pair. Pinza suggested that the kredemnon was not a veil but a fillet for the hair, but Lorimer showed that "the testimony of ζ 100 is by itself conclusive. Nausicaa and her girls divest themselves of their *κρήδεμνα* that they may not be hampered in their game of ball; a ribbon to keep the hair off the face is the last thing that would be discarded in the circumstances."[95] Lorimer, however, admitted that in ε 346, 351, 373, and 459 the evidence for Ino's kredemnon is for a ribbon; this would make a better life-belt. However, anything of Ino's attire, being enveloped with magic power, could be a life-belt: a kredemnon, a ring, a belt.

If our view is right, the longish shape of the kredemnon may explain Ino's kredemnon as a magic life-belt better than a ribbon. It may also explain the use of the word to denote a long city wall (Π 100, ν 388: Τροίης *ἱερὰ κρήδεμνα*; or *Eleus. Hymn Dem.* 151: *κρήδεμνα πόληος*). It may explain why Nausicaa and her friends took off their kredemna (ζ 100). Lastly, it may explain the use of the word as a jar lid, cf. γ 392ff:

τοῖς δ' ὁ γέρων ἐλθοῦσιν ἀνὰ κρητῆρα κέρασσεν
οἴνου ἡδυπότοιο, τὸν ἐνδεκάτῳ ἐνιαυτῷ
ὤιξεν ταμίη καὶ ἀπὸ κρήδεμνον ἔλυσεν·
τοῦ δ' ὁ γέρων κρητῆρα κεράσσατο, πολλὰ δ' Ἀθήνῃ
εὐχετ' ἀποσπένδων, κούρῃ Διὸς αἰγιόχοιο.

A long piece of cloth placed on top of the mouth of a lidded jar, its ends tied round the neck, offers the considerable advantage of becoming incapable of motion regardless of the position of the jar.

It remains to consider the apparent reference in the inventory inscription of the Samian Heraion for the goddess' horned mitrē: *μίτρη πάραυλος ταύτην ἡ θεὸς ἔχει*.[96] Though the word *μίτρα* ordinarily means a ribbon, or band, or the like, it also means a headdress worn mostly by Asiatics.[97] And, though the word *πάραυλος* has remained obscure, it may be here remarked that the suffix *-αυλος* occurs as part of the word *αὐλ-ῶπις*. *Αὐλῶπις τρυφάλεια*, however, is taken to mean a horned helmet with four horns. It is generally agreed that *αὐλῶπις* is an adjectival form applied either to *κυνέη* or to *κόρυς*; so is *τρυφάλεια*. The linguistic evidence thus seems to provide some assurance that the headdress of the Samian Hera was a horned mitrē.

The association of the horned mitrē with Hera might also make intelligible the old hieratic epithet *βοῶπις*. If our view is correct, *βοῶπις* may designate neither a cow-faced nor an ox-eyed goddess, that is, a goddess implying a religion with zoolatric element. It may simply be an epithet with a special bearing on the mitrē worn by some of her images. The bovine horns (pl. 101, fig. 27) of some of these mitrai may have given birth to the hieratic epithet of this warlike goddess.[98]

It is possible that the goddess of Sardeis also had a horned mitrē;[99] also some other goddesses in Asia Minor, whose images were made like the image of this goddess.[100] There are, however, several other Asiatic goddesses who seem to wear a kredemnon and a high mitrē without any horns attached.[101] Among them is Artemis Leukophrene. These deities should be distinguished from the powerful and warlike deity of Samos. As we may see from the "birds" which formed part of her attributes (pl. 101, figs. 27-28), she was a warlike goddess once, but at the same time she was also a goddess of fecundity. The warlike nature of this goddess is echoed in historic times in the Samian custom of sacrificing to her in armed procession (*μεθ' ὅπλων*). According to Farnell, this custom is an allusion to Hera as "a goddess who aided her people's warfare."[102] The warlike nature of Hera is echoed in historic times in two other hieratic epithets: *Ἥρα Τροπαία*[103] and *Ἥρα Ὁπλοσμία*.[104] It is also echoed in the feast of the shield in Argos.[105]

[95] Lorimer, *op.cit.* 385.

[96] Cf. *supra*, n. 68.

[97] Euripides, *Bacchai* 1115/16:

. . . ὁ δὲ μίτραν κόμης ἄπο
ἔρριψεν, ὡς νιν γνωρίσασα μὴ κτάνοι τλήμων Ἀγαύη.

[98] One of the goddesses from Gazi (Marinatos, *ArchEph* [1937] 285, fig. 8; 287, fig. 2) shows two of the attributes of the Samian Hera: the horned cap and the birds (the birds are attached to the cap). One of the goddesses from Karphi (*Kretika Chronika* 12 [1958] pl. 6, 1) shows a pair of horns attached to her headdress.

[99] Lacroix, *op.cit.* pl. 14, 5. The horns of this image, however, could equally be explained as a crescent of a moon.

[100] *ibid.* pl. 14, 9.

[101] *ibid.* pl. 11:14,15. For the use of the head veil in Greek prehistoric times cf. the Warrior Vase (Lorimer, *op.cit.* 368).

[102] Farnell, *Cults of the Greek States* I, 187.

[103] *RE* VIII, 383. [104] *ibid.* 382.

[105] Farnell, *op.cit.* I, 249, note 36 b; *RE* VIII, 417.

ANDROMACHE'S HEADDRESS

The component elements of the horned mitrē of the Samian Hera might further help us to understand the headgear worn by Andromache.[106] Two main attempts have been made to explain this headdress: one by Helbig, one by Pinza. Helbig tried to explain it on the analogy of Etruscan tomb painting of the fifth century. Pinza tried to explain it on the basis of Mesopotamian headdresses, in which he saw a stiff cap, a plait of false hair, and a ribbon. Lorimer favoured Helbig's view, after reaching the conclusion that "archaic Greek art offers no parallel to this headgear." Nothing, however, seems to suit the description of Andromache's headdress better than the headdress of the Samian Hera.

According to Homer, Andromache's headgear was composed of a) an ampyx, b) a kekryphalos, c) a plekte anadesme, and d) a kredemnon, X 468:

τῆλε δ' ἀπὸ κρατὸς βάλε δέσματα σιγαλόεντα,
ἄμπυκα κεκρύφαλόν τε ἰδὲ πλεκτὴν ἀναδέσμην
κρήδεμνόν θ', ὅ ῥά οἱ δῶκεν χρυσέη Ἀφροδίτη.

The ampyx may easily be explained as a metal stephane worn round the forehead. If our view is correct, the second element of Andromache's headdress, the kekryphalos, is the most important. The last part of this word is *-φαλος*. Kepryphalos, therefore, might be a horned cap. The Captain of the Blacks in the Knossos fresco wears a cap with horns attached.[107] The use of the word *κεκρύφαλος* in later times to denote a mere cap (hornless), or the stomach of ruminants, or a kind of net, may be explained as due to a resemblance between the form of these objects and the original form of the horned cap. In the inventory inscription of the Samian Heraion the kekryphalos occurs as part of the kosmos of the goddess, and probably refers to a mere cap. The inventory inscription dates from the fourth century. Apart from its shape, the kekryphalos in this time had no other relation to the Homeric kekryphalos.

The third element of Andromache's headdress, the plekte anadesme, might have been a fillet inside the horned cap. In the headdress of the Samian Hera this element is missing. It is also missing from all representations of Near Eastern horned mitrai. A possible explanation, therefore, is that both the ampyx and the kekryphalos concealed this fillet. Being pliable (plekte), the anadesme could be tied round the head, possibly to secure the kredemnon. The inventory inscription does not seem to mention such a fillet; and we have to conclude that either it was not among the important paraphernalia of the goddess, or by the time of the inscription it had gone out of use.

The fourth element of the headdress, the kredemnon, may be explained as a long scarf, which would be placed on top of the head and fall half on the left, half on the right. The fact that the plekte anadesme is mentioned before the kredemnon is of no importance. Homer probably mentions the kredemnon last because he wants to say more about it (it was a gift of Aphrodite).

The enumeration of all four elements of Andromache's headdress suggests that Homer has seen and recorded something quite exceptional, for this headgear occurs nowhere else in Epic. Lorimer has pointed out that "Andromache is not a Greek and the poet may have wished to stress her alien quality by her costume and have chosen his model among the neighbours of Ionia."[108] Lorimer also suggested that the original of Andromache's headdress is not Greek, but some Anatolian form known to the author of X 469; and that it may be that its ultimate origin is to be sought further east. From what we have seen Lorimer seems to be both right and wrong. The ultimate origin of the horned cap is Mesopotamia; but it came to be known in Anatolia and East Greece.

Andromache's headdress is a piece of Anatolian local color. Apart from this, there is a possibility that Homer wished to emphasize something else. The horned mitrē was a mark of power and was always associated with warlike natures. Hector's wife, though sweet and of mild character, bears a warlike name: *Ἀνδρομάχη*. The horned cap may not suit her mild character. It suits, however, her name. This controversy between her nature and her name may not be accidental. On the analogy of Helen, who is thought to have been a local deity and was later reduced to a heroine, we feel tempted to see behind the epic Andromache a local deity of Anatolia, a warlike goddess, either Hittite or Hurrian.

[106] For complete bibliography cf. Lorimer, *op.cit.* 386ff.
[107] *PM* II, 2, pl. XIII; Bossert, *Alt-Kreta* fig. 228.
[108] Lorimer, *op.cit.* 387/88.

THE ΘΕΟΣ AND THE ΟΠΙΣΘΕ ΘΕΟΣ
THEIR ATTRIBUTES

The inventory inscription of the Samian Heraion informs us that the Samian Hera had many chitons. It also informs us that most of her chitons had a selvage of different color on one side (exastis):

κιθὼν Λύδιος ἔξαστιν ἔχων ἰσάτιδος.
κιθὼν Λύδιος ἔξαστιν ὑακινθίνην ἔχων.
κιθὼν Λύδιος ἔξαστιν ἀλοργὴν ἔχων.
κιθὼν λινοῦς ἔξαστιν ἀλοργὴν ἔχων.
κιθῶνες λύδιοι ἐξάστεις ἀλοργὰς ἔχοντες.

The text of the inscription speaks of one selvage of different color (exastis), not of two (exasteis). The selvage on the other side must have, therefore, been plain. On the tile impression,[109] which reproduces the cult image of Hera (pl. 101, fig. 31), we see a vertical band in front of the garment (the impression dates from the fifth century B.C.; it is taken to be a more faithful reproduction than that on Roman coins). The exastis of the inscription might be identified with this vertical band in front of the garment, and be paralleled with the vertical band in front of the garment of the goddess of the pithos relief from Tenos. Vertical bands in front of the garment were in vogue in the Late Helladic period; they probably originated as a means of concealing a front opening (cf. supra, The Relief on the Boeotian Pithos in Athens). To form the front opening the two selvages would be brought to meet each other, the plain selvage would then be overlapped by the other, which would form a vertical band in front, and the opening would thus be concealed from view.

A front opening is implied in Ξ 175/83. There Hera is said to comb her hair first, then put on a dress, which is pinned in front, then a belt:

τῷ ῥ' ἥ γε χρόα καλὸν ἀλειψαμένη, ἱδὲ χαίτας
πεξαμένη, χερσὶν πλοκάμους ἔπλεξε φαεινοὺς
καλοὺς ἀμβροσίους, ἐκ κράατος ἀθανάτοιο.
ἀμφὶ δ' ἄρ' ἀμβρόσιον ἑανὸν ἕσαθ', ὅν οἱ Ἀθήνη
ἕξυσ' ἀσκήσασα, τίθει δ' ἐνὶ δαίδαλα πολλά·
χρυσείῃς δ' ἐνετῆσι κατὰ στῆθος περονᾶτο.
ζώσατο δὲ ζώνην ἑκατὸν θυσάνοισ' ἀραρυῖαν,
ἐν δ' ἄρα ἕρματα ἦκεν ἐυτρήτοισι λοβοῖσιν
τρίγληνα μορόεντα· χάρις δ' ἀπελάμπετο πολλή.

On the tile impression the garment of the Samian Hera, apart from the exastis, which implies a front opening, shows traces of a belt: the part of the garment above the waist seems ampler than the part below the waist. Hera's dress in Homer has a) a front slit (because it fastens *κατὰ στῆθος*; moreover it is put on after the hair has been carefully combed); and b) a belt.

The dress of the goddess on the pithos relief from Tenos has an exastis, which implies a front slit, but has no belt. In this respect it goes straight back into the Bronze Age. A dress with a front slit, but without belt is implied in E 734 where Athena takes off her dress by a single movement: *πέπλον μὲν κατέχευεν ἑανὸν πατρὸς ἐπ' οὐδει.* Since the combination of a front opening and a belt seems to form a modification which first appears in East Greece, we may surmise that the belt is a post-Mycenaean adoption of either the Syro-Hittite or the Assyrian belt.[110] Hera's dress in Homer—called *ἑανός*—echoes this adoption, since it is worn with belt. We may picture this dress on the analogy of one of the chitons of the Samian Hera (whose exastis implies a front opening) worn with a belt (which we may identify with the *περίζωμα* of the inventory inscription). Athena's dress in Homer—also called *ἑανός*—is worn without belt. It follows the mainland, not the East Greek tradition, is conservative, and remains faithful to the Mycenaean tradition.

Another prehistoric element which may have been inherited by the Samian Hera is seen in the objects in her hands. The theories about the use of these objects vary. Lange considered them to be supports of the statue's arms ("sich als Stützen zu erkennen geben").[111] Picard suggested that they were "liens dont on avait chargé le primitif xoanon lui-même, pour l'attacher au temple dont il faisait l'ornement."[112] Deonna explained them as borders of veil on the view that "il ne peut s'agir d'objets

[109] *AM* 68 (1953) Beilage 4, 1.

[110] Studniczka indicated the oriental character of Hera's girdle in Homer (*Altgriechische Tracht* 122/23). Herbig had previously suggested an Assyrian origin (*Das Homerische Epos*[2] 206/10, fig. 60). The belt occurs in the Hittite garments of the second as well as of the first millennium B.C. (Akurgal, *Remarques stylistiques sur les reliefs de Malatya* 45); but usually lacks ornamentation. Assyrian belts, on the contrary, are most elaborate. Hera's girdle in Homer may be thought of on the analogy of the belts of the Zinçirli figures (Bossert, *Alt-Anatolien* figs. 949/50) which are under strong Assyrian influence.

[111] Lange, *AM* 6 (1881) 70; cf. also Head, *BMC* Ionia 43, no. 53: her hands supported by two props standing each on an urn?

[112] Picard, *Ephese et Claros* 534.

rigides, bâtons, piliers, supports, puisqu'ils sont souvent obliques, inclinés vers les pieds de la déesse, alors qu'ils devraient être verticaux, s'ils avaient pour fonction de supporter quelque chose."[113] Others explained them as libation cups with fillets hanging down.[114]

Hogarth suggested th[illegible] "two lines usually fall from the hands"[115] and that "the lines in question, in certain representations, are continued above the hands, in such a way that it is clear they were understood by the engravers of particular dies to be objects of a wand-like nature held by the figure."[116] Lacroix related them to the devices on Eastern Greek coins which hang from an isolated hand, or from the beak of a bird.[117]

The bands below the hands of the cult-image (pl. 101, figs. 27-31) are obviously parts of the objects sticking out of the hands. Save Hogarth and Lacroix, the others paid little attention to the objects sticking out of the hands. Only these two regarded objects and bands as a unity.

The shape of the "knotted bands" of Hera may be compared with some Syro-Hittite examples. Speaking of the sculptures of the Syro-Hittite region, Lloyd observed the presence of peculiar bands in the hands of some divinities. He remarked of the Great Goddess of this region that "in her hands she holds a curious garland resembling a skipping rope."[118] Woolley had before remarked that a band was held by a goddess of Carchemish, and he had called it a "cloth for unction."[119] The goddess of Carchemish wears a horned mitrē. Her nature, therefore, matches the nature of the Samian Hera.

Syro-Hittite seals (pl. 101, figs. 32, 33) offer further help. We have several seals on which a Syro-Hittite goddess appears, nude, holding one "knotted band" in each hand. These bands were explained by Ward and others as borders of the dress of the goddess who is seen "withdrawing her garments to disclose her nudity."[120] These bands, however, show nothing in the nature of a garment. Like the Samian Hera, the Syro-Hittite goddess holds in each hand a band with a loop tied, sticking out of the hand, while the two ends fall down like ribbons.

The pair of "knotted" or "looped" bands is a common feature in Greek prehistoric religion. Scholars have called the pair by the conventional name "sacred knots."[121] They may be described as bands forming a knot on top, with the two ends falling downwards. When in pairs, these usually converge towards one another. They also have fringes. These features are present in the "knotted bands" of the Samian Hera.

Models of the "sacred knots" are found in faïence; and there are numerous representations of them. They seem to form part of the ritual of the Great Goddess, and are among her attributes. In one instance—the fresco fragment from Phylakopi[122]—the goddess, seated in profile, seems to hold with the hither hand a "sacred knot." The "sacred knots" of the Great Goddess, the "knotted bands" of the Samian Hera, as well as the bands "for unction" of the Syro-Hittite goddess, seem to point to the same ritualistic conception.

There is no need to identify the "sacred knots" with the Hittite "looped cross," as Bossert does.[123] The nature of the "looped cross" has been discussed by Güterbock,[124] who suggested that the Hittite version of it seems to be equivalent to the cuneiform sign TI, life. The genuine Mycenaean "sacred knot" has no horizontal bar (pl. 101, fig. 34), and usually comes in pairs. There is no actual relation, therefore, between the "sacred knots," and the Hittite "looped cross" (pl. 101, fig. 35). There are, however, some Greek pre-historic "looped crosses" (pl. 101, fig. 36)—these never come in pairs—but they must be kept apart from the "sacred knots."

The inventory inscription of the Heraion informs us that the kosmos of the Samian Hera included λινᾶς σφενδόνας δύο. In Epic the single use of the word sphendone in N 597-600 is applied to a bandage:

[113] Deonna, *RA* 19 (1924) 16.

[114] Farnell, *Cults of Greek States* I, 206: "(Hera) holding a libation cup in each hand, from which what appears to be is a sacred fillet hanging down"; cf. also *RE VIII*, 379.

[115] Hogarth, *The Archaic Artemisia* 323.

[116] *ibid.* 332. [117] Lacroix, *op.cit.* 147ff.

[118] Lloyd, *Early Anatolia* (Pelican Series A 354) 166.

[119] Woolley, *Carchemish* III, pl. 36 (a-b); cf. also Bossert, *Alt-Anatolien* fig. 860. Another related example may be seen on the relief from Sakçagözü (Bossert, *ibid.* fig. 887).

[120] Ward, *op.cit.* 296ff; cf. also L. B. Holland, *AJA* 33 (1929) 195, fig. 9; Contenau, *Glyptique Syro-Hittite* 41, figs. 136, 139, 140, 142, 156, 182, 183.

[121] *PM* I, 430ff; *JHS* 45 (1925) 6ff; Bossert, *Alt-Kreta* figs. 47 (a-d) and 264. *Schachtgräber* pls. 151-52.

[122] *PM* III, 43, fig. 26; the figure, according to Evans, is a lady in a sacred robe; according to Bosanquet (*Phylakopi* 72, fig. 61) the figure is of a man.

[123] Bossert, "Šantal und Kupapa," *Mitteilungen der Altorientalischen Gesellschaft* IV, 3 (1932) 12/13, figs. 5/6.

[124] Güterbock, "Siegel aus Bogazköy," in *Archiv für Altorientalischen Gesellschaft* IV, 3 (1932) 12/13, figs. 5/6.

. . . τὸ δ' ἐφέλκετο μείλινον ἔγχος.
καὶ τὸ μὲν ἐκ χειρὸς ἔρυσεν μεγάθυμος Ἀγήνωρ,
αὐτὴν δὲ ξυνέδησεν ἑυστρόφῳ οἷὸς ἀώτῳ,
σφενδόνῃ, ἣν ἄρα οἱ θεράπων ἔχε ποιμένι λαῶν.

Ξυνέδησεν in line 599 implies that the Homeric sphendone had two ends which could be tied together. One likes to think that the sphendonai of the Samian Hera were sacred bandages with some bearing on the goddess' healing powers; or cloths used in her ritual. The commonest use of the word sphendone in historic times is, of course, sling. The same word is also applied in historic times to a band worn round the head or the waist.

Stylistically viewed the "knotted bands" of the Samian Hera stand between the prehistoric "sacred knots"[125] and the Syro-Hittite "knotted bands." The broad loop seems to be a prehistoric element, the excessive length of the bands below seems to be an Iron Age modification.

On the evidence of the "sacred knots" in faïence found at Mycenae, the superimposed sections can be explained as strips of different weaving; on the Roman coins showing the Samian Hera—as well as on the seals showing the Syro-Hittite goddess—the die-sinkers indicated these elaborate strips, but they made them look like ropes.

Of the two images of Hera which are mentioned in the inventory inscription, the **θεός** and the **ὄπισθε θεός**, Ohly pointed out that the **θεός** must be the old cult-image, and the **ὄπισθε θεός** a later image of Hera.[126] The chitons with the exastis belonged to the **θεός**; the white himation belonged to the **ὄπισθε θεός**. Ohly, however, remarked that "Welche besondere kultliche Form mit dem zweiten Bilde verknüpft war, bleibt zu fragen."

If we wish to distinguish an earlier and a later image, a few details seen on the coins might help us. In a good many Roman coins we see two goddesses depicted (pl. 101, fig. 30). The lower body of one of these goddesses (cf. also figs. 27-31) is often rendered like an unfluted trunk, slightly broader at the bottom, and with no regard to the physical form. The figure in general seems like an upright bolt,[127] and we may conclude with some certainty that the images of Hera showing this peculiar sculptural form are likely to reproduce the **θεός**. Farnell has remarked that the lower part of the Samian goddess "has the same stiff almost aniconic appearance as the Samian statue in the Louvre, and Overbeck suggests it may be that the wealth of drapery seen on most of the coins does not represent what was really carved upon the idol, but rather sacred garments."[128] The garments this goddess wore, according to the inscription and the reproductions of the coins, are the following: a chiton (with exastis), a belt (*περίζωμα*?), an ependytes[129] (*περίβλημα*?), a band worn crosswise over the ependytes[129a] (*πρόσλημμα ἀμφιθύσανον*?), a simple mitrē (fig. 30) or a mitrē with two horns (*πάραυλος*?), a long veil, falling half on the right side of the head, half on the left (*κρήδεμνον*?), a stole over the shoulders (figs. 27, 30) falling half on the left, half on the right side (*τρίχαπτον ἱμάτιον*?), two knotted bands (*σφενδόναι*?). This image is likely to be the image Pausanias saw and described as most ancient looking.

The other goddess depicted on the aforementioned coins does not show any mitrē (fig. 30). She wears a mantle drawn over her head. According to the inventory inscription, the **ὄπισθε θεός** had a white himation. We may, therefore, safely identify the second figure with the second image of Hera; and we may conclude that the **ὄπισθε θεός** was dressed in a white himation as a bride, in "habitu nubentis" (Varro as quoted by Lactantius, *Inst.* 1.17.8). This goddess seems to be an image of free-stance style, dating probably from the fourth century B.C. A similar figure accompanied by a wheel often occurs, either alone or with the **θεός**, on Samian coins of the Roman period. According to Gardner, this figure is a version of Hera as Nemesis.[130]

As to the date of the **θεός**, her attributes (the horned mitrē with the kredemna, the chiton with the exastis, the sphendonai) point to a prehistoric

[125] The check pattern set diagonally is in imitation of some kind of textile material. In some cases the threads of the fringes are tied together in groups.

[126] *AM* 68 (1953) 45.

[127] On some coins reproducing the **θεός** we notice a niche with feet coming out. Niches with feet coming out are a feature which occurs in the Protogeometric period (*JHS* 57 [1937] 141, figs. 1/2; *BSA* 38 [1937/38] pl. 31; *BCH* 61 [1937] pl. 39). A similar treatment appears on two Phoenician ivory figurines in the Louvre (Decamps de Mertznfeld, *Inventaire commenté des ivoires phoeniciens et apparentés* pl. 121 [1066, 1067, 1068]).

[128] Farnell, *Cults of Greek States* I, 206.

[129] Thiersch, *Ependytes* 10.

[129a] *AA* (1919) 139; *AM* 55 (1930) 2, fig. 1.

[130] Gardner, *Samos and Samian Coins* 77: "(Nemesis) is really representative of the Samian Hera, a shadow or double of the great local goddess."

derivation. Some of these attributes, however, are modified in the neo-Hittite or the Assyrian fashion (the knob of the horned mitrē, the addition of the belt, the excessive length of the sphendonai). Archaeological evidence thus seems to point to a close link between the prehistoric Great Goddess and the Samian Hera on the one hand; and to the multiplicity of relations with the countries of Anatolia and the Near East in the Early Iron Age on the other.

ATHENS

News Letter from Rome[1]

A. W. VAN BUREN

PLATES 102-107

Dr. Gianfilippo Carettoni, the Soprintendente of the Palatine and Roman Forum, kindly reports as follows on the activities of that administration:

On the eastern slope of the Palatine, the systematization of the new monumental entrance through the reconstructed portal of Vignola has led to the partial clearing of the noteworthy complex of imperial constructions extending along that zone with several tiers of arches.

In the House of Livia, as part of the completion of the undertaking to restore the important group of paintings, the Istituto Centrale del Restauro has proceeded to detach the left-hand wall of the right *ala*, including the well-known yellow monochrome frieze.

To the southwest of the House of Livia, the excavation has been extended to the zone between the Scalae Caci and the so-called Temple of Apollo, where there is a large construction going back to the beginning of the imperial age, with walls of tufa ashlar, decorated with paintings, and pavements in mosaic and in marble inlay. In this zone, numerous architectural elements are coming to light, columns of *portasanta*, Doric capitals, and cornices, probably pertaining to a portico the exact location of which has not as yet been identified.

In line with the northern corner of the Domus Tiberiana, an important task of restoration has been accomplished, the reconditioning of the large vaulted spaces which flank the Clivus Victoriae; and the rehabilitation of their upper surfaces has made it possible to acquire a new, large terrace overlooking the Roman Forum.

In the zone of the Comitium, bordering on the Roman Forum, progress has been achieved with the stratigraphical investigation of the structures of the Republican age.

We add an item from another quarter of the city. Building activity near the Church of Santa Croce in Gerusalemme—in an area of the ancient city which had been assumed to have consisted largely of open spaces such as gardens—has resulted in a quite unexpected addition to knowledge of the plan of ancient Rome: a large circus, which had been bisected by the builders of Aurelian's wall. Its investigation is in the hands of Professor Giulio Jacopi, Soprintendente of Rome I, and the suggestion has already been made that it might be accorded a function, or at least be given some prominence, on the occasion of the approaching Olympic Games.

The discussions of recent years regarding the protection and preservation of the landscape and antiquities along the Latin and Appian Ways in the neighborhood of the capital have now culminated in an official project, the Park of the Appian Way: it is contemplated that there should be a protected zone extending out from Aurelian's wall so far as to include the seventh mile of the Latin Way with the point where the two highest of the urban aqueducts emerged above ground; thus completing the creation of a "green zone" which will start with the Roman Forum and Palatine and will be continued by the Passeggiata Archeologica with the Baths of Caracalla, including also the villa on the Caelian. Meanwhile, the area in and about the Circus of Maxentius has already yielded significant remains, some of them antedating that emperor's activities. The south wall of the circus itself has now been cleared (pl. 102, fig. 1). The circus will probably be accorded prominence in connection with the Olympic Games.

An unusual addition to the Communal Collections is the bf. skyphos shown on pl. 103, fig. 2; it was found near the Pons Milvius.[2]

The collections have also received the admirable

[1] The most recent installment of these reports appeared in *AJA* 63 (1959) 383-94, pls. 95-100.

For material generously communicated on the present occasion, with permission to publish, sincere thanks are due to Messrs. G. Annibaldi, J. Bayet, G. Carettoni, A. M. Colini, P. Griffo, P. Orlandini, Massimo Pallottino, V. Panebianco and J. B. Ward Perkins.

Dr. Gisela M. A. Richter has again been so good as to give her opinions.

[2] Enrico Paribeni, *Bollettino dei Musei Comunali di Roma* 6 (1960) nos. 1-4, pp. 41-47.

The treatment of the subject is unusual. Hermes, not Dionysos, is carried not on the traditional goat but on a ram; he is accompanied not by satyrs but by human comasts, one of them

replica of the head of the "Omphalos Apollo" (pl. 102, fig. 3)[3] which was found at the Circus of Maxentius.

An event of consequence in the VATICAN CITY has been the rearrangement of the three figures of the Laocoon group so as to present a convex front.

The vast undertaking at the new international airport of Fiumicino continues to add to knowledge of the CLAUDIAN PORT of ancient Rome. Several more boats has been uncovered; at least some of them had been filled with stones and cement and in this state sunk as part of the harbor works; Suetonius, *Claudius* 20, tells of the ship that had transported a great obelisk from Alexandria and then was sunk to serve as the foundation of the lighthouse at the entrance to the harbor; and the somewhat similar fate of a derelict bark is described by Martial, 10.85. A newly-found inscription supplies official information as to some details of the administration of the port at the beginning of the third century of our era.

As its Director, Professor Venturino Panebianco, kindly informs us, the systematic program of investigation initiated several years ago by the Salerno museum maintains its interest,[4] for each of the three periods represented in this area.

At SALA CONSILINA continuation of investigations in the zone of the northern, archaic, burial area at the locality S. Antonio, situated to the east of the Contrada S. Nicola where 82 Oenotrio-Ausonian tombs (eighth-seventh centuries B.C.) were found in 1957, has yielded 128 more tombs including 33 with cremation, of the same type as those previously known and with interesting burial equipment.

Especially noteworthy is the discovery, beside the ossuary of impasto and together with the equipment in a cremation tomb (pl. 103, fig. 4: right middle), of an impasto *oikos*, rectangular in plan, with a window on the long side to left of the door, having a gable roof adorned by two small birdlike figures in line with the end acroteria, and with its outer walls decorated in geometric motives in white, produced by attaching pieces of metal.

The exploration of the larger necropolis also has been carried further; here 27 more Oenotrio-Ausonian burials were found, including three with cremation, of the usual type and showing the customary equipment.

At PADULA (Consilinum) the investigation of the zone to the north of the Certosa has been carried further. It has been ascertained that the remains of various buildings, scantily preserved, especially when they lay close to the surface, were to be attributed to a suburb of Consilinum, which developed alongside the villa of a "*dominus*," the first stage of which went back to the Hellenistic period. Nearby was practiced, in imperial times, the cult of Aesculapius, as the divinity protecting from the noxious exhalations of the Valley of the Tanager, the vestige of a former pleistocene lake.

Further investigations, in the zone to the northeast of the village of Padula, have led to the discovery of some more Attic vases with representations, belonging to the equipment of five Graeco-Italiote tombs which—like those reported a year ago—had already suffered damage through the planting of trees and vines (pl. 104, fig. 5).[5]

The neighborhood of SALERNO itself maintains its interest. The widening of the Strada Provinciale n. 26, at S. Angelo di Ogliara, some 7 kilometers from Salerno, revealed the presence of three Hellenistic tombs. These were explored in February of the present year; they were constructed of tufa blocks, their inner walls faced with stucco which showed traces of vegetal decoration; they were covered with gable roofs, and they preserved the customary funeral equipment in recesses inserted beside or below the couch (pl. 104, fig. 6).

An account of developments in ancient Bruttium, kindly supplied by Professor Alfonso de Franciscis, the Soprintendente for that area, is impressive for a special reason: it enumerates no less than twenty

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blowing the double flute and the other apparently clapping the *krotala*.

[3] Published in *Capitolium* 35 (1960) no. 2, p. 10. The side view there presented in addition to the front view here given shows a detail which, as Dr. Richter observes, is instructive for the methods of the copyists: the strands of braided locks of hair drawn about the head have been reduced from four, as in the Athens statue, to one or two.

Figures 1-3 were generously presented by Dr. A. M. Colini of the archaeological services of the Commune of Rome.

[4] Photographs kindly supplied by the Director, Professor Venturino Panebianco.

[5] The rf. column-krater bears an unusual representation: Herakles, either returning or departing, greeted or bidden farewell by Oineus, Deianeira and the infant Hyllos. Dr. Richter cites Roscher, s. v. Herakles, 2215 ("Auszug"), with the Naples bf. amphora, Heydemann, *Vasensamml.* no. 3359 and *ArchZtg* (Dec. 1866) 260-61; (1867) Taf. 218 (*sic*). She observes that—in the absence of information as to the representation on the opposite side of the present vase—it seems impossible to decide between "return" and "departure."

The rf. hydria appears to show the usual "conversation piece."

localities from which reports had reached the Soprintendenza of occasional finds, often slight in themselves, but testifying in one way or another to ancient occupation and to varying degrees of culture. More immediate interest attaches to the news from Locri, where the theater had been identified in the course of a preliminary exploration in 1940-41, near the temple-site of Marafioti. It is now being cleared. As in all Greek theaters, the tiers of seats for spectators were installed upon a natural slope of ground, the audience faced towards the southeast, in the direction of the Ionian Sea. Only a little survives of the stage building; but there is a fair stretch of the cavea, together with seats and stairways (pl. 107, fig. 7), also part of the orchestra and parodoi, one of the latter showing substantial adaptations of the Roman period (the original form of the edifice appears to date from the Hellenistic age). The upper structure is represented by several stretches of a stone cornice, perhaps belonging to the stage building, and also by some terracotta antefixes in the form of theatrical masks. Meanwhile, the inscribed sheets of bronze which were reported a year ago are now stated to contain records of the acts of the civic administration (contractual obligations into which it had entered?).

The news from Etruria maintains its interest. Professor J. B. Ward Perkins, the Director of the British School at Rome, generously continues his reports of previous years regarding the activities of that institution, as follows:

Activities in Southern Etruria during 1959. Throughout the territory of Veii new sites, Etruscan, Roman and medieval, continue to be recorded in embarrassing profusion. Few of these are spectacular in themselves, but each adds its quota to the already impressively detailed overall picture of communications and settlement in successive periods. Near Grotta Rossa, for example, between Rome and Veii, there is what appears to be explicit evidence of a Republican land-settlement scheme, which would clearly merit more detailed examination. It is also now certain that nearly all the medieval villages within the area, long thought to be on the sites of earlier settlements, are in fact, new foundations; between late antiquity and the Middle Ages there was, here at any rate, a break in the pattern of settlement no less marked than that between the Etruscan and Roman periods. Work has recently been extended, under the charge of Mr. Barri Jones, to the territory of Capena, which is threatened with the passage of the new great arterial road, the Via del Sole.

Trial excavations on the site of the *Domusculta Capracorum* have had to be temporarily deferred, but clearance of a part of the "Bagni della Regina," undertaken with the ready cooperation of the Superintendency of Antiquities for Southern Etruria, in the valley of the R. Cremera beneath the walls of Veii, has revealed interesting details of an early Roman bath-building in which use was made of the hot water from a group of natural hot springs. Within Veii itself analysis of the distribution of black-glazed wares shows that the literary evidence suggesting the virtual abandonment of the site until the establishment of a *municipium* under the early Empire is not to be taken literally: already in the third century B.C. the nucleus of this later settlement had been reconstituted, no doubt as a market town for the area of which it was the established road-centre. Near Sutri Mr. Guy Duncan cleared a pottery-kiln dating from the first century A.D., and at least two other kilns have been located, near Veii and Capena respectively. At Tomba di Nerone (*Ad Sextum*) on the Via Cassia, building operations on the site of the Overseas School disclosed part of a substantial Roman building; through the courtesy of the Superintendent of Antiquities for Roma Prima, this was cleared and surveyed and a Tiberian date established for a handsome black and white mosaic (pl. 107, fig. 8) in terms of the pottery stratified beneath it.

The important undertaking at SANTA SEVERA (PYRGI) has been developing in accordance with its comprehensive program, and Professor Massimo Pallottino has generously communicated the proof sheets of his preliminary report on the third campaign, 1959, which should be available in *ArchCl* long before this News Letter is in print. The fieldwork has centered about the clearing of the exterior of the temple; its features have now been definitely established, and further stratigraphical observations have confirmed the results of the previous campaigns. More fragments of architectural terracottas have been found, including perhaps the remains of a second pediment. A survey has been undertaken of the coastal area. Meanwhile, in the laboratories of the Villa Giulia Museum, the recomposition of the already known pedimental figures in high relief has led to the discovery that the figure of Athena stood not at the middle of that pediment but somewhat to the left of a higher figure: hence the group was higher and broader than had at first been thought, and its attribution to the temple becomes less improbable.

The undertaking of the French School of Rome at BOLSENA[6] has entered a new phase with Dr.

[6] The Director, Professor Jean Bayet, has kindly supplied information as to Bolsena and Megara Hyblaea.

Raymond Bloch's completion of his exploration of the site of La Città and Capriola. Several archaic fossa tombs lying around the second hill appear to testify to the extent of the burial areas depending on the Etruscan settlement of La Città. At the locality Le Porcine, a large well, three meters in diameter, of Etruscan workmanship, with blocks of tufa set without the use of cement, has up to now yielded only sherds of the beginning of our era, although its clearing has reached a depth of m. 5.50. The edifice discovered in 1958, at the foot and to the east of La Città, has now been completely excavated. It is a farm building, and includes a dwelling-house and storeroom (for wine or oil) m. 17.60 x 11.40, the walls of which, of rough stones strengthened by blocks of tufa, recall the small archaic temple on the hill. The ceramic material and two coins, asses with the Janus head, bring us down towards 200 B.C. The continuity of occupation of the settlement is thus attested from the Bronze Age to the Etrusco-Roman period. All the material found in these excavations is at present assembled at the Villa Giulia in Rome; perhaps a portion will be taken to form the new Museum of Bolsena-Volsinii.

The well-planned undertaking of the Swedish Institute at San Giovenale has continued to fulfill the expectations aroused by the first year's campaign.[1] At the close of 1959 it was possible to report:

1. One large Villanova hut with stratification starting from Subapennine times.

2. A central fortress below the mediaeval De Vico castle—either it is contemporary with the fifth century period of Veii or it is to be classed with the fourth century Roman fortifications such as the later ones at Pyrgi and Cosa.

3. A remarkable sixth century cemetery—in addition to the various tombs all around the town—in a somewhat remote valley called La Camerata.

4. A few Villanova tombs (surprisingly few however, considering the size of the village) and several other isolated finds.

Occasional items in the Roman press bear witness to the wide interest felt in discoveries in the general Etruscan area, and arouse the desire for fuller, more documented information. There is mention of a well-preserved painted tomb-chamber of the fourth century of our era at Castelnuovo di Porto, a few miles up the Tiber from Rome; a fresh Etruscan necropolis in the territory of Norchia and another at Casiano di Murlo near Siena; another painted tomb at Tarquinia; and significant under-water remains discovered by the new methods of submarine exploration off the shoreline at Santa Severa (Pyrgi).

Dr. Giovanni Annibaldi, the Soprintendente for the Marche, kindly supplies from Ancona information regarding events of the past year in that region:

At Monterinaldo, at the locality "La Cuma," where excavations had been conducted in previous years, the clearing has been continued of the sanctuary of a divinity as yet unidentified. It has now proved possible to determine that a portico with Ionic columns on the interior and Corinthian on the exterior enclosed the sanctuary on three sides, forming a rectangle of about m. 60 by perhaps 70. At its center stood the temple, a small sector of which has been uncovered. Of this edifice also, architectural fragments have been found. The finds of architectural terracottas also have continued to be abundant; these are datable in the second and first centuries B.C. Types already met in previous years were repeated, but new ones are also frequent.

At Fermo, the excavation of the "Piscine" has been undertaken: these constitute a notable example of subterranean cisterns.

At Ancona itself, on Via Ferretti, in the area of the former Palazzo Fatati, situated between the Palazzo degli Anziani and the Museo Nazionale, notable remains of Roman buildings have come to light, including an L-shaped cryptoporticus, which has been preserved entire and utilized in the basement of a new structure.

At the amphitheater there have been interesting developments. An excavation has been started to the north of the "Arco Bonarelli," which itself forms one of the main entrances of that edifice. A structure has been demolished which concealed parts of the walls of the Roman building, and thus considerable portions have been brought to light of the analemma, connecting stairs and interior walls. These undertakings have made it possible to devote attention to the constructive phases of the amphitheater, which from the very start of the investigations has shown itself to have been built or rebuilt in various periods. The undertaking next proceeded to an extensive excavation of the foundations of the amphitheater in the same zone, and this is still continuing. This has led to the discovery

[1] *AJA* 61 (1957) 380.

of structures antedating the amphitheater, or at least to adjuncts of the earliest phases of the amphitheater itself, which became covered up during its reconstruction. Among these quarters, remains of wall-paintings came to light, as well as a pavement showing a black-and-white geometric mosaic, together with an inscription recording two magistrates of Ancona.

At Attiggio di Fabriano, an interesting "Neolithic" settlement has been brought to light, characterized by the presence of baked and incised pottery, the axe of green stone, the lance-head with transverse cutting edge, together with an abundance of flint blades so tiny as to be almost "microlithic."

In addition to these more extensive undertakings, smaller excavations have been conducted at Numana and Tolentino, in the search for Picene tombs; these have produced a notable yield of objects in clay and bronze; at Fermo the investigation of the Villanovan necropolis, which the previous year had yielded extremely rich material, has been prosecuted with success; at Serrasanquirico, in the locality Trivio, two Gallic tombs have been recovered.

Among the apparently inexhaustible Sicilian sites, Catania has yielded a vast votive deposit, the object of study by Dr. Giovanni Rizza.

During the last two campaigns at Megara Hyblaea,[8] MM. G. Vallet and F. Villard have obtained some extremely important results. To the north of the Hellenistic Agora, they have disclosed several stages of streets going back to the archaic period. Between these, and behind the portico, a Doric temple has been discovered, distyle *in antis* (m. 16 x 9), with a pronaos m. 2.70 deep, carefully constructed of a very fine white limestone towards the close of the fourth century B.C. The decorative elements preserved permit of a sure restoration: the columns measured m. 0.79 in diameter at the base and m. 4.535 in height including the capital; the architrave and frieze, in one piece, m. 1.12 in all; the geison and the raking cornice of the pediment are decorated at the base with two Ionic moldings (pl. 105, fig. 9); the sima is carved with lions' heads, forming real or false spouts (pl. 105, fig. 10). Total height: m. 6.985, excluding a pediment of about 1 m. A fragment of a dedication on a Campanian sherd suggests Aphrodite as the local divinity; it would be to her statue that a beautiful head belonged, which was found intact near a lime-kiln (at a distance of some ten meters from the south border of the Agora) (pl. 105, fig. 11), together with some further details which appear to be derived from the same sanctuary.

The construction of this edifice involved the destruction (in order to replace it?) of a *naïskos* m. 2.90 x 5.75, only a quarter of a century older, set against the back of the portico. It is from a single Ionic sanctuary, of the close of the sixth century B.C. at latest, that some fragments of lions' heads appear to be derived which were found to the north of the Agora (pl. 105, fig. 12) and a magnificent cornice block in Parian marble (lions' heads spouts, palmettes and lotus flowers) (pl. 105, fig. 13), which had been destined for the lime-kiln to the south of the open area. The excavators have in addition managed to find time to install the first section of the antiquarium which, close to these beautiful ruins and serving as their commentary, will bear witness also, Professor Bayet adds, "to the most constant, friendly and generous collaboration between the Italian authorities and our scientists."

The developments at Agrigento and neighboring sites during the past ten years and more have been most impressive; they have already become known in part through scattered publications. A comprehensive statement by the Soprintendente, Professor Pietro Griffo, is to appear elsewhere, and here we can mention only a few of the projects still in progress and the most recent discoveries.

At Agrigento itself the area of the familiar temples has been accorded a worthy landscape setting, with an antiquarium; the slope to the north of the "Tempio di Ercole" has been completely excavated, with important finds especially of terracottas; other areas in the vicinity of the same temple have yielded comparable material extending from the Archaic to Palaeochristian times. Much information has been acquired as to the various cult centers. In the present city, a National Museum is in process of construction.

The investigation of Licata (ancient Phintias) was resumed on a large scale in June and July of 1959. Groups of prehistoric burials were found; of the classical city such elements as fortifications, houses, granaries, cisterns, rock sanctuaries, and Hellenistic tombs.

In 1957 the Grotta Zubbia, where Orsi made

[8] *AJA* 63 (1959) 393.

some tests in 1926, was thoroughly explored in a stratigraphic excavation; it has revealed a succession of early cultures, starting with the Neolithic Stentinello type.

At Heraclea Minoa, the series of campaigns which began in 1950 continued through 1959 with outstanding results that defy summarizing here.

The inauguration of the museum at Gela was recorded in last year's report. The generosity of the Director, Professor Pier Orlandini, now makes it possible to present, pl. 106, fig. 14, a photograph showing part of the entrance hall. Professor Orlandini also supplies information as to a development which took place in May of 1959: the discovery of an important votive deposit in two strata on the hillside of Gela facing the sea, in the Predio Sola. The upper stratum contained fictile female masks of the end of the sixth and the beginning of the fifth century B.C. (pl. 106, fig. 15). The lower stratum comprised Late Daedalic statuettes (pl. 106, fig. 16)[9] and small Corinthian vases extending in time from 630 to 550 B.C. Great interest attaches to a terracotta lamp datable towards 630/620 B.C., decorated with alternating heads of men and rams. Professor Orlandini considers that this is probably a local imitation of the marble lamps of Cycladic origin which are known especially through the examples at Selinunte and the Athenian acropolis. He is at present preparing the publication of this votive deposit. Meanwhile the already extensive bibliography of Gela has continued to grow.[10]

In conclusion: in March of the present year, a further step was taken in the application of air-photography to the purpose of archaeological research: a 20-day course in the interpretation of air-photographs, conducted with the collaboration of several government agencies, held at the military aeronautic center of Guidonia, and attended by twelve of the Soprintendenti. The results may be expected to be far-reaching, even if the present course is considered only a beginning.

ROME

[9] The details of the hair would have been indicated in color.

[10] P. Orlandini, "Noterelle epigrafiche da Gela," *Kokalos* 3 (1957) 94-97; "Il gusto per l' imitazione dell' antico della Gela del IV-III sec. a. C.," *ArchCl* 10 (1958) 240-42; "La rinascita della Sicilia nell' età di Timoleonte," *Kokalos* 4 (1958) 24-30; "Il nuovo Museo Nazionale di Gela," *Annali della Pubblica Istruzione* 5 (1959) 151-56; "I nuovi scavi archeologici in Sicilia: Scoperte e problemi," *Annali della Pubblica Istruzione* 5 (1959) 538-44; "Arule arcaiche a rilievo nel Museo Nazionale di Gela," *RM* 66 (1959) 97-103.

P. Orlandini and D. Adamesteanu, *Guida di Gela* (ed. Pleion 1958).

D. Adamesteanu, "Scavi e scoperte nella Provincia di Caltanissetta dal 1951 al 1957," *NSc* (1958) 288-408; "L'opera di Timoleonte nella Sicilia Centro Meridionale," *Kokalos* 4 (1958) 31-68.

P. Griffo, *Sulle orme della civiltà gelese* (Agrigento 1958).

In press: P. Orlandini, "Materiale archeologico gelese del IV-III sec. a. C. nel Museo di Siracusa," *ArchCl* 11 (1959); P. Orlandini and D. Adamesteanu, "Gela—Scavi e scoperte 1951-1959, fasc. II," *NSc* (1959).

Acknowledgments for photographs: figs. 1-3, courtesy of A. M. Colini; figs. 4-6, Laboratorio of the Museo Provinciale di Salerno, courtesy of V. Panebianco; fig. 7, Gab. Fotogr. of the Soprintendenza alle Antichità della Calabria, courtesy of A. de Franciscis; fig. 8, courtesy of J. B. Ward Perkins; figs. 9-13, courtesy of J. Bayet; figs. 14-16, courtesy of P. Orlandini.

Archaeological Notes

THE WOMAN-EROS PAINTER, A LATE APULIAN ARTIST*

PLATE 108

The lebes gamikos is a shape frequently used by Italiote red-figured vase-painters of the fourth century B.C. Small vases of this type are fairly common in the minor Paestan groups[1] and in the Campanian workshops.[2] While lebetes gamikoi are by no means rare in the Lucanian potteries,[3] they are very popular in Apulia, especially among artists of the last quarter of the century,[4] who are stylistically connected with the Ilioupersis, the Lycurgus and the Dareios painters.[5]

The Italiote lebes gamikos derives from the Attic nuptial lebes type 2.[6] Although its shape remains in its essential features always the same, it can at times be very elaborate. Its vertical handles, which are often ribbed, may have knobs at the top, while its shoulder may be decorated with knobs or plastic heads near the roots of the handles.[7] The lid can also be complex, supporting one or, in some cases, two superimposed small lebetes gamikoi or lekanides.[8] A peculiarly elaborate variant is used by the Lucanian artist called the Choephoroi painter, in which the lid supports a rather long stem with a bird perched on it, and three miniature lebetes gamikoi round it.[9]

Apulian vases of this shape can be elaborate enough.[10] Most of them, however, are simple and small, their height not exceeding 165 mm. They have a comparatively high foot, thin vertical handles, and very tiny, scarcely perceptible shoulder knobs. Many extant vases of this small-size variant have lost their lids, but there is no reason to doubt that these also were simple, like the lid on a vase in Adolphseck.[11]

As already mentioned, a good number of the extant Apulian lebetes gamikoi belong to the group of artists which grew around the Ilioupersis, the Lycurgus and the Dareios painters. So far, this large group has not been thoroughly investigated, and it is probable that in many cases the identification of individual artists will prove to be a difficult task. Nevertheless, in spite of the general lack of originality, some personalities stand out by their amusing and characteristic, although poor, drawing.

Such a personality is the painter responsible for the decoration of a small lebes gamikos of simple shape privately owned in Bryn Mawr, Pennsylvania[12] (pl. 108, figs. 1-2). The lid is lost, but otherwise the vase is in excellent state of preservation. Its height (including the handles) is 145 mm.; its greatest diameter 87 mm.; the diameter across its foot 51 mm. The even quality of the drawing and subject matter consisting of two figures—one on either side—in no special compositional relationship to each other, suggests that the artist did not care to make a clear distinction between obverse and reverse. Like so many other painters of small two-handle vases he felt that such a distinction would have been superfluous on a piece which in spite of its division into two separate decorative areas can be looked at easily from different angles.

On one side a woman dressed in chiton is seated on a pile of rocks. Her hair is confined by a kekryphalos except for a bunch at the top of her skull, which juts behind. She wears earring, necklace and bracelets. In her right hand she holds a wreath, in her left a phiale. On the other side of the vase an Eros of the hermaphrodite type is seated on a similar pile. He is naked, but wears shoes and kekryphalos resembling that worn by the woman. He is ornamented with similar pieces of jewelry, and in addition to these he also wears an anklet. His right hand rests on the pile of rocks, his left hand holds a phiale and a fillet.

The lebes gamikos London F346 (pl. 108, figs. 3-4) is very close to that in Bryn Mawr both in size[13] and subject matter. The vase is broken and in some degree restored. An important part of the figure-work on one side, and part of the foot are missing. The lid is lost. The woman-Eros motif which occurs on the Bryn Mawr vase is repeated here with the figures standing, not seated. The woman holds a wreath and a tympanon; the Eros holds a mirror and a bunch of grapes.

* My thanks are due to Professor Machteld Mellink and Professor A. D. Trendall who read my manuscript and made some valuable suggestions which I have adopted.

[1] Trendall, "Paestan Pottery: a revision and a supplement," *BSR* (1952) 13-14, 18.

[2] Beazley, "Groups of Campanian Red-Figure," *JHS* (1943) 66ff.

[3] *CVA* Bologna 3, IV Gr, pl. 3, 8-9; *CVA* Taranto 1, IV Gr, pl. 7.

[4] A number of late Apulian lebetes gamikoi are illustrated in *CVA* Sèvres, pl. 35.

[5] For these artists see Trendall in *Handbook to the Nicholson Museum*, second ed., 324ff, and the forthcoming book on the Dareios painter by Margot Schmidt.

[6] Beazley *ARV* VIII.

[7] Two such elaborate Campanian examples are the lebetes gamikoi London F207 by the Danaid painter, *JHS* (1943) 75, no. 7; and London E203 by the Painter of Capua PLL. 11-13, *JHS* (1943) 71, no. 7.

[8] Two examples with complex lids are the Lucanian lebes gamikos by the Roccanova painter Taranto 3574, *CVA* 1, IV Gr, pl. 7 (for this painter see *Handbook to the Nicholson Museum*, second ed., 329) and the Campanian by the painter of Capua PLL. 11-13 London F202, *JHS* (1943) 71, no. 6.

[9] Trendall, "The Choephoroi painter" in *Studies Robinson* II, 119, nos. 25-26.

[10] Two elaborate examples are the vases Copenhagen 377, *CVA* 6, IV D, p. 257 and Genoa 1201, *CVA* IV, Dr, pl. 3.

[11] No. 193, *CVA* 2, pl. 86, 7-9.

[12] In the possession of the writer who bought it in the London market.

[13] The measurements according to Mr. Denys E. L. Haynes are as follows: height (including the handles), 154 mm.; greatest diameter, 87 mm.; diameter of foot, 52 mm.

The face of the woman and the greatest part of the drapery on her chest and waist are lost. The preserved portion of her skirt resembles the corresponding portion of the dress worn by the woman on the Bryn Mawr vase. In both the folds run mostly in couples, while the line indicating the seam on one side of the garment is differentiated from them by being drawn in diluted glaze. Like the Eros on the vase in Bryn Mawr that on London F346 wears trinkets. Although the two figures differ in the treatment of their legs, which are thin in the former and fat in the latter, they are closely connected by their kekryphaloi, their open wings touched with white-gold pigment, and especially their patellae indicated by almost vertical double thin strokes distinctly separated from each other at the top but converging at the bottom. This kind of treatment of the knee-caps is by no means common in contemporary Apulian red-figure. It is in fact a very characteristic feature of the Bryn Mawr and London vases which, added to their other common stylistic traits discussed above and to the similarity of the stroke patterns on their shoulders and that of their handle and filling ornaments, convinces me that the two pieces are by a single artist.

To this painter a third piece can be attributed, a skyphos in the Musée National de Sèvres published by Madame Massoul in the *CVA*.[14] Although both type A and Corinthian type skyphoi[15] are used by Italiote red-figure artists of the fourth century, Campanian painters seem to favor the former[16] while their Apulian colleagues prefer the latter.[17] The Sèvres skyphos is of Corinthian type. Its rim is decorated with an egg-pattern, a canonical feature of Italiote red-figure skyphoi.[18] The woman-Eros motif, after which our artist takes his name, is repeated on the Sèvres vase with both figures standing like those on the London lebes gamikos. The woman on one side holds a phiale and wreath, the Eros on the other is represented leaning on a small Ionic column with a phiale in the right hand. The subsidiary decoration on the Sèvres skyphos resembles that of the lebetes gamikoi discussed above. The stylized flowers flanking the palmettes under the handles have calyces with long curving sepals and corollae consisting of five petals like those on London F346.[19] The bunches of grapes in the field indicated by reserved areas filled up with white dots recall the bunch of grapes held by the Eros on the London vase.[20] The ivy leaf, the rosettes and the branches in the field have their parallels on either or both lebetes gamikoi. In addition to these features the Sèvres skyphos is especially connected with the two other vases by the style of drawing of the figure-work. The woman on it is impressively similar to that on the Bryn Mawr vase with whom she is connected by the shape of the kekryphalos—also worn by the Erotes—the sloping shoulders, the gestures of the arms and, above all, the treatment of her chiton on which the folds are mostly indicated by double, often strongly curving lines. The Eros is close to the Erotes on the two other vases and especially to that on London F346, to whom he is related by the plump body and especially the genitals and the kneecaps.

The date of the vases attributed to the Woman-Eros painter is difficult to determine with great accuracy. Their style is better than that of post-Dareian vases. Since the Dareios painter is rather convincingly placed in the beginning of the last quarter of the fourth century, I am inclined to accept a similar date for our artist, whose identification, it is hoped, will contribute toward a more systematic classification of late Apulian red-figure vases without which it is not possible to form a clear idea of the stylistic and iconographic developments in the fourth century painting of the Greek colonies in South Italy.

ALEXANDER CAMBITOGLOU
BRYN MAWR COLLEGE

[14] Sèvres 223, *CVA* pl. 35, figs. 9, 15, 18 and 19. According to the text of the *CVA* the height is 120 mm. The diameter is no doubt wrongly given as 0.12.

[15] For these variants which are borrowed from Attic red-figure prototypes without any important changes see Beazley *ARV* X.

[16] For a good number of Campanian skyphoi type A see *CVA* Capua 1, IV Er, pls. 39-45.

[17] For a number of Apulian skyphoi of the Corinthian type see *CVA* Lecce 2, IV Dr, pls. 55 and 56.

[18] The place of the egg-pattern is occasionally taken by a wave-pattern.

[19] Although very similar the corollae of the handle-flowers on the Bryn Mawr vase have only three petals.

[20] The similarity to the bunch of grapes on the vase in Bryn Mawr is less close since this has black instead of white dots.

TWO FRAGMENTS OF A GEOMETRIC STAND IN TORONTO AND ATHENS*

PLATE 109

Several summers ago, during a brief visit in the Royal Ontario Museum in Toronto, I was able to study the Geometric fragment illustrated on pl. 109, figs. 1-2. It is obviously a foot of a pot-stand decorated with a scene of two warriors duelling. The shape is almost rectangular, splaying slightly downward. The outside decorated surface is somewhat convex, the plain inside surface somewhat concave. There are two important breaks, one at the bottom right corner, the other along the top. The museum number is 957x245. The measurements, according to Professor Walter Graham and Mrs. Neda Leipen, are as follows: height, 95 mm.; width at the top, 50 mm.; at the bottom (including that of the missing corner), 60 mm.; thickness, 11 mm. The clay is light buff; the glaze is reddish, not black.

The warriors, who have come to grips, are arranged

* My thanks are due to Professor Walter Graham, Mrs. Neda Leipen, Mme. Semni Karouzou and Dr. Barbara Philippaki who facilitated my study of the two fragments and allowed me their publication. Professor William H. Willis read my text and suggested some stylistic improvements which I have adopted.

in an almost heraldic composition. They are naked, with triangular torsos and pronounced hips and calves. They wear helmets of which the crests alone are indicated. With one hand each grasps the other's crest, with the other hand each holds a sword piercing the other's thigh. The aesthetic effect of the composition is principally the result of the chiastic arrangement of the lifted forearms, swords, and forward legs. The scene is framed on either side by a pair of thin vertical bands, above by a thin horizontal band, and by three others below.

Another foot with a similar duel scene, here reproduced on pl. 109, figs. 3-4, was published recently by Mme. Semni Karouzou in the second fascicule of the *Corpus Vasorum Antiquorum* of the National Museum in Athens (inv. no. 17384, *CVA* 2, III Hd, pl. 17, fig. 2, text p. 11).

While a comparison of pictures of the two fragments made me suspect that they might belong to the same stand, a first-hand study of that in Athens confirmed my suspicion. The two pieces are quite similar in size and in the colors of their clay and glaze. They are further connected by the similarly spaced grooves of the potter's wheel on their undecorated inside surface. With the foot in Athens part of the zone above it also is preserved, decorated with a zigzag line framed by two pairs of horizontal thin bands. Its measurements are as follows: Total height, 107 mm.; width at the level where the foot joins the zone above it, 46 mm.; width at the bottom, 51 mm.; width of the extant part of the zone above it, 66 mm.; thickness at the top, 11 mm.; at the bottom, 12 mm. Since there is no reliable record of the provenance of the fragment in Toronto and since the fragment in the National Museum was confiscated by the Greek archaeological authorities in the Athenian market, it is likely that the former also was acquired from the same place.

The warriors on the foot in Athens are slightly different from those on the foot in Toronto. Their swords do not cross and in their lifted arms, which should be considered in the light of those of the warriors on the Toronto foot, the forearms are omitted because of negligence on the part of the artist.

The type of pot-stand to which our two fragments belong is called by Professor Johansen a *hypokraterion* (see Copenhagen *CVA* 2, text to pl. 72,3) and by Mme. Karouzou a *hypokrateridion* (see Athens *CVA* 2, text p. 11). Both variants of the term occur in ancient sources, but the second seems to me more appropriate to our piece because of its comparatively small size. A reconstruction of its original shape was attempted by Mme. Karouzou in the *Corpus Vasorum* (Athens *CVA* 2, text p. 11 and fig. 3). According to this reconstruction our stand would have consisted merely of a narrow ring-shaped zone resting on three or four feet. Mme. Karouzou based her reconstruction on the slightly erroneous observation that the top surface of the fragment in Athens is undamaged and smooth throughout. She admitted, however, that such a smooth surface would not necessarily prove that the stand could not be taller. It could be the lower boundary of a rectangular opening above each foot like those on the fenestrated zone of a Geometric stand in the University of California (*CVA* pl. 1,2). About the existence of a similar fenestrated zone in our stand before it was broken I became convinced after a close study of the fragment in Athens, which revealed that its top surface is not smooth throughout, as Mme. Karouzou states, but rough and slightly raised near the breakage at the left corner. This slight projection is no doubt a spur of the wall between two of the openings of the fenestrated zone. It is not indicated in the drawing published in the *Corpus Vasorum*, but can be seen clearly on my photograph reproduced on pl. 109, fig. 4.

Miss Eva Brann kindly informs me that most Geometric stands of this cylindrical shape have a shallow bowl at the top. The absence of any traces of such a bowl at the top of the inside surface of the fragment in Athens may be additional evidence that our stand was taller than the reconstruction illustrated in Mme. Karouzou's text in the *Corpus Vasorum*.

The original number of feet is uncertain. Since the two that are preserved are narrow in proportion to the diameter of the stand suggested by their curvature,[1] it is possible that the original number was four rather than three. A Geometric stand in Copenhagen (*CVA* 2, III H, pl. 72,3) and another in Amsterdam (Musée Scheurleer *CVA* 1, II F, pl. 1,2) also have four feet.

The style of drawing on our two fragments is late Geometric. Mr. Nicolas Coldstream kindly tells me that he would place it in the third quarter of the 8th century. He thinks also that the stand was made in Attica.

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ON *SALAMIS*: LETTER TO THE EDITOR

Dear Editor,

I should be grateful if you will permit me to reply to one of the accusations which Professor W. K. Pritchett has published in an article entitled "Toward a Restudy of the Battle of Salamis," *AJA* 63 (1959) 259. He writes as follows: "Hammond has accused his predecessors of making sport of the battle of Salamis," and "Hammond is hardly fair to accuse his predecessors of playing a game of tiddlywinks." He refers apparently to p. 38 of my article, "The Battle of Salamis," *JHS* 76 (1956), where I did not accuse anyone of making sport of the battle, but I was concerned in general with misuse of the ancient evidence and in particular with the arbitrary selection and discarding of pieces of ancient evidence, a method which I compared to a game of tiddlywinks. The comparison is apt and not, I think, unfair; for just as a tiddlywinker flicks a single piece into a bowl and disregards the other pieces, so a misuser of ancient

[1] This according to Mrs. Leipen should be approximately 152 mm. long.

evidence may flick one piece into place and discard or even disregard the other pieces.

Professor Pritchett has perhaps missed the point because his own approach towards a restudy of the battle is an illustration of this method. For example, in attempting to identify Psyttalia with Lipsokoutáli rather than with Áyios Yeóryios he adduces Aeschylus, *Persae* 447-449:

> *νῆσός τις ἔστι πρόσθε Σαλαμῖνος τόπων,*
> *βαιά δύσορμος ναυσίν, ἣν ὁ φιλόχορος*
> *Πὰν ἐμβατεύει, ποντίας ἀκτῆς ἔπι.*

where he thinks the epithet *δύσορμος* fits Lipsokoutáli better than Áyios Yeóryios.[1] But he disregards Aeschylus, *Persae* 465-467:

> *Ξέρξης δ' ἀνώμωξεν κακῶν ὁρῶν βάθος·*
> *ἕδραν γὰρ εἶχε παντὸς εὐαγῆ στρατοῦ,*
> *ὑψηλὸν ὄχθον ἄγχι πελαγίας ἁλός.*

Yet this passage is vital to the identification of the island; for the fact that Xerxes saw the details of the fighting on Psyttalia not only points to Áyios Yeóryios as the island, but excludes Lipsokoutáli, if Xerxes' throne was on the slope of Mt. Aegaleos opposite Salamis (Herodotus 8.90.4). Professor Pritchett can hardly have overlooked the lines in Aeschylus' *Persae* because I quoted them on the very page which he criticizes.

Stranger still, he remarks on p. 257: "anyone standing on Salamis today clearly sees men moving about behind the island barricades [of Áyios Yeóryios] only 300 m. distant." On the very page which he criticizes I referred to Plutarch, *Aristides* 9, *Ἀριστείδης δ' ὁρῶν τὴν Ψυττάλειαν, ἣ πρὸ τῆς Σαλαμῖνος ἐν τῷ πόρῳ κεῖται νῆσος οὐ μεγάλη, πολεμίων ἀνδρῶν μεστὴν οὖσαν*, a passage in which Aristides was "standing on Salamis" and saw men moving on Psyttalia. Put the two together, and it is pretty obvious that Áyios Yeóryios is Psyttalia! Not so Professor Pritchett; he wants Lipsokoutáli to be Psyttalia, and he turns a blind eye on Plutarch, *Aristides* 9. Of course he is on another tack at this stage; for he is ridiculing my view that, Psyttalia being Áyios Yeóryios, Persian troops were placed on it, and exclaiming that anyone "standing on Salamis" would have seen them. Characteristically enough, he omits to mention the passage which describes the placing of the Persian troops on the island, Herodotus 8.76.3: *ἐποίευν δὲ σιγῇ ταῦτα, ὡς μὴ πυνθανοίατο οἱ ἐναντίοι*. It was done *in silence* to escape the enemies' notice and *during the night*!

I hasten to add that I am not accusing Professor Pritchett any more than some of my predecessors of making sport of the battle of Salamis. My point is simply that the method which they and he pursue of picking one piece of evidence and discarding (or sometimes suppressing) another piece of evidence—even from the same author—is a radically false method and does not lead to a proper understanding of this or any other battle.

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[1] His argument here baffles me. "This lowlying island [Áyios Yeóryios] is not used for anchorage, although boats tie up with no difficulty. See the piers. . . ." The piers are modern ones, and they have been built precisely because the island is *δύσορμος* without them.

THE ORIGIN OF THE ETRUSCAN-SAMIAN GRIFFON CAULDRON

PLATES 110-111

The masterly treatment of Greek griffon-cauldrons by Ulf Jantzen in 1955 (*Griechische Greifenkessel*, Berlin) marked a long step forward in our understanding of the origins and developments of these striking bronze vessels. He concluded that the invention was Greek, (pp. 46-47) though the protome-cauldron was based on Asiatic models, and that the earliest type of hammered bronze should be dated about 700 B.C. (p. 84). The first manufacture might have been in the Peloponnese or the islands of the Aegean. In a review of Jantzen's book, Hanfmann (*Gnomon* 29 [1957] 241ff) supports the Greek origin of the griffon-cauldron (p. 245) as opposed to the views of Payne (H. Payne, *Perachora* [Oxford 1931] 129), Amandry (P. Amandry, "Chaudrons à protomes de taureau en Orient et en Grèce," p. 249, note 28 in *The Aegean and the Near East, Studies Presented to Hetty Goldman* [New York 1956]), and Maxwell-Hyslop (*Iraq* [1956] 156) who prefer the Near East, either Anatolia or Syria as the original home.

In Etruria the first protome griffons appear in the Barberini Tomb (G. Q. Giglioli, *L'Arte Etruria* [Milan 1935] pls. XI and XIV, 1; Jantzen, *op.cit.* pls. 2 and 3) usually dated in the second half of the seventh century B.C. The earlier cauldron of the Regolini-Golassi Tomb (Giglioli, *op.cit.* pl. XIII) belonging to the first half of the century has lion heads instead of griffons. In general, development of the griffon head in Samos and Etruria is so similar that a common origin and parallel development is taken for granted. Etruria could have borrowed from Greece, Greece could scarcely have received the type from Etruria at this period, that is the early seventh century.

The fully developed griffon protome from Rhodes (pl. 110, fig. 1) (Jantzen, *op.cit.* pl. 33) has long curved neck, open mouth, protruding tongue, eagle beak, high narrow pointed ears and prominent top-knot capped by a knob and a point. The late examples are all made of cast bronze. The early type of Samos, Greece and Etruria, e.g. U. Jantzen, *Griechische Greifenkessel* pl. 1, no. 4, from Samos (our pl. 110, fig. 2) has open mouth, Aegean plume, small ears and top-knot, a curved but heavy neck, no eagle beak and no protruding tongue. The figure is made of hammered bronze. The angry open mouth reminds one most perhaps of a snapping turtle and the pattern on

the neck resembles scales as much as or more than feathers.

It is clear that this early Samian-Greek-Etruscan protome figure is already a griffon; namely partly a fantastic figure composed of various animal elements to form a representation not found in nature. It is also clear that it belongs through the open mouth, the ears (here of lion type) and the top-knot to the distinctive class of fully developed griffon protomes belonging to the later period.

The Asiatic influences which caused the growth of ears and top-knot, the open mouth and the eagle beak do not concern us here.[1] When the Asiatic influences have been removed the head and neck of a serpent remain. The serpent itself remains in two examples from Samos (Jantzen, *op.cit.* pl. 49, figs. 1 and 2) (our pl. 110, fig. 3). They have the narrow curling neck, the serpent scales, and the long narrow head of a snake. The mouth is closed, the eyes are prominent. The beard on a serpent was a rarity in Greek design and probably derived from the Anatolian ibex. It was the only indication of a composite figure in the Samian serpent.

The well known silver and gilded bowl from the Bernardini Tomb in Praeneste (pl. 110, fig. 4), (F. Poulsen, *Der Orient und die Frühgriechische Kunst* [Berlin 1912] fig. 15; G. Q. Giglioli, *op.cit.* pl. XXXIII, 1) shows the six serpent heads still in place. They have long sleek necks, pointed heads, narrow eyes—all the characteristics of the serpent well portrayed, excellently delineated. From the Barberini Tomb of the same period (second half of the seventh century B.C.) come both the earliest Italian cauldron with griffons attached (pl. 110, fig. 5) (Giglioli, *op.cit.* pl. XI) and a protome griffon head of very early type (pl. 110, fig. 6) (Giglioli, *op.cit.* pl. XIV, 1). The griffon heads have long but swelling necks, incipient ears and top-knots, open mouths and Aegean plumes, but not yet the eagle beak and the protruding tongue. These finds from Praeneste are most interesting because they show that in Italy, at least, the final form of the serpent is contemporaneous with the earliest representation of the griffon.

The serpents as protomes on cauldrons disappear in both Samos and Etruria in favor of the griffon and it seems hard to believe that the development was from griffon to serpent rather than vice-versa, especially in view of the comparative excellence of the two types in Praeneste. The serpent as prototype for the later griffons accounts for the long sinuous neck, often more prominent in the later examples, the scales rather than feathers along the body, and the snub nose rather than the eagle beak.

The serpent, however, brings up the relationship between the protome and the wide bellied vessel. In Asia Minor the common form of cauldron with protome decoration has the bull (P. Amandry, *op.cit.* 239ff) and the bowl of the cauldron symbolizes the body of the multiple-headed animal. With the snake it is impossible to consider the great round bowl as the body even of the extremely well fed or bloated reptile.

The serpent cauldron should be referred rather to the sun disk and double serpent, belonging to the Uraeus of Egypt. The double serpent in Egypt circles round the disk and the protome figures on the cauldron represent double serpents protecting the cauldron with their bodies. The popular sun symbol took many different forms around the Mediterranean from the winged god disk of Mesopotamia and Persia to the disk duck design in Hallstatt.[2]

If the Egyptian serpent-disk is the prototype of the griffon cauldron then the first stages should belong to regions south of Samos. To put it in another way, the earliest griffon figures of Samos belong distinctly to a second phase of development, i.e. the first phase away from the serpent protome. The serpent phase is an import in Samos (and the bearded serpent is already a step away from the first form) and should be derived from a prototype closer to Egypt.

It is significant, therefore, that the silver bowl from Praeneste (pl. 110, fig. 4) was imported or under the influence of Rhodian artists, if one judges by the decorative zone of ducks along the rim, or to Phoenician artists if one judges by the palm trees, or to artists in Cyprus where Phoenician and Rhodian designs met.

There is another very interesting connection which may be made between the griffon cauldrons and the cauldron carts of Phoenicia. Ronzevalle (*MélUSJ* 16 [1932] p. 55, pl. IX, figs. 6 and 7; P. S. Ronzevalle, S.J., "Le Prétendu Char d'Astarte et son Betyle") pointed out some time ago that the so-called chariot of Astarte on the Roman coins carried not the betyl of Astarte but the sun disk and crescent with snake frames beneath (pl. 111, fig. 7). The four-wheeled cart or chariot carried the cauldron. The appropriate symbols of sun disk and serpents were placed on the sides. It is no great step to remove the bowl from the cart and to fasten the distinctive symbols to the side of the cauldron. Probably the flaming cauldron itself represented the glowing ball of the sun. There is no direct evidence for this. In Egypt the solar boat was the usual conveyance for the symbols and god of the sun. In the ninth century in Palestine, however, it was the fiery chariot and the fiery horses that descended from the sky to raise Elijah to heaven (II Kings 2, 11). The shape of the cauldron itself, round and deep and large, is the best evidence that the round ball of the sun was represented.

A bronze cauldron chariot from Enkomi in Cyprus presents an excellent example (pl. 111, fig. 8) in the period just before the first millennium B.C. (1100-1000 B.C., H. Th. Bossert, *Altsyrien* [Tübingen 1951] fig.

[1] See Bernard Goldman, "The Development of the Lion-Griffin," elsewhere in this issue.

[2] Mr. Mylonas has recently called attention to the relationship between the griffon cauldrons and the early gorgon heads on the amphora from Eleusis. G. E. Mylonas, *The Proto-Attic Amphora from Eleusis* (Athens 1958) 86 and 122.

301) as it is launched from the mainland into the Mediterranean. The winged sphinxes, as symbols of the sun, are probably as close a picture as one may obtain of the fiery horses of Elijah's chariot, and certainly the Biblical vehicle had the four wheels of the Cyprian example. The chariot is dedicated to the sun but on the corners of the Cyprian cart beneath the cauldron rim rest the birds of Astarte.

The cauldron cart went up into Central Europe through the Amber Route and an excellent illustration (pl. III, fig. 9) (N. Åberg, *Chronologie V* [Stockholm 1935] fig. 86) shows the deep rounded cauldron on the chariot with what looks like springs supporting the birds. These springs are the remnants of the solar frames in the East. In Etruria the development moved in the other direction with an occasional cart (pl. III, fig. 10) (O. Montelius, *Vorklassische Chronologie Italiens* [Stockholm 1912] fig. 227) emphasizing the water bird (it is the goose of Isis replacing the dove of Astarte) (compare also D. Randall-MacIver, *Villanovans and Early Etruscans* [Oxford 1924] fig. 46). Gradually the cauldron with the serpent griffons dispensed with the movable vehicle in favor of the Anatolian sleeved base, and the Oriental-Greek tripod stand.

It was only as the cauldron freed itself from the cart that the serpents attached themselves to the vessel. This might well be only when the cult had moved away from the mainland but it can scarcely be beyond the region where Egyptian influence remained very strong. The original serpent cauldrons as opposed to griffon must be located somewhere south of Samos and east of Greece. The serpent origins, and the griffon with serpent prototypes, explain why the griffon cauldron has not been found in the interior either of Asia or Asia Minor.

The representation of the snake frames beneath the sun disk on the coins of Sidon belongs to the Roman period. The idea of snake frames for the solar or celestial symbol, however, appears very early in the Aegean area and in Crete goes back as far as the first phase of the Late Minoan period. Nilsson has collected the material (M. P. Nilsson, *The Minoan-Mycenaean Religion* [Lund 1927] 310ff) and shown the frames represented above the head of the goddess, and so in the field of the sky, supporting sometimes the sun disk, sometimes the double axe. Plate III, fig. 11 (Nilsson, *op.cit.* pl. II, 8, 9) shows frames very clearly with the double heads and the diminutive head of the goddess so characteristic of the L.M.I. period. On Cretan gems the frames are either triple or double and on the coins of Sidon the number is not always clear. The silver bowl of Praeneste with its six serpents' heads represented three double serpents, however, and the very decided preference for six griffons heads on the cauldrons both in Greece and Etruria showed that triple frames had become standard in the first millennium.

The original identity of the cauldron with the sun probably explains best why the vessel should have been regarded as so suitable an offering to the gods.[3] There was, however, a very special relationship between the great nature goddess and the sun in the eastern Mediterranean. One may recall the birds of Astarte on the sun chariot of Cyprus (pl. III, fig. 7) and the snake frames with sun and sky symbols above the head of the great Cretan goddess (pl. III, fig. 10). Such a connection would explain the preference for the griffon cauldrons in the sanctuaries of Hera on Samos and in Argos, and very probably in part at least in Olympia and Etruria. The Asiatic influence which transmogrified the serpent into the griffon revolutionized the form of the head but it never completely obliterated the basic Mediterranean conceptions inherent in the original design of sun disk and double headed serpents.

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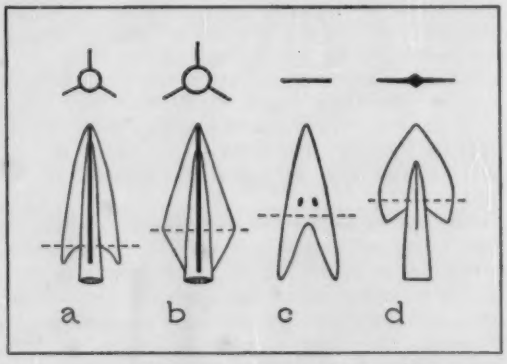
[3] Hanfmann calls attention to this special popularity: *Gnomon* 29 (1957) 248.

ΤΡΙΓΛΩΧΙΣ

Homer twice describes arrows as τριγλώχις.[1] Helbig took this to mean "having three barbs." His interpretation, despite its chronological and semantic impossibility, has been resuscitated by recent scholars. As prototype they adduce an arrow-head, "associated with the Scyths," which "can hardly have come into the Epic much earlier than 700 B.C."[2] (ill. 1, a). It is true



ILL. 1. Ancient arrow-heads. a: Three-barbed arrowhead (Balkan?); b: Three-bladed arrow-head (Iranian); c: Notched arrow-plate (Mycenaean); d: Barbed and tanged arrow-head (Mycenaean, from Pylos)

[1] *Il.* 5.393, Herakles wounded Hera δίστῳ τριγλώχινι; *Il.* 11.507, Alexander struck Machaon ἰῷ τριγλώχινι.

[2] Wolfgang Helbig, *Das homerische Epos aus den Denkmälern erläutert* (Leipzig 1884) 245 and fig. 94; Hilda L. Lorimer, *Homer and the Monuments* (London 1950) 285-86 with fig. 36; 294-95; and most recently Dorothea H. Gray *apud* D. L. Page, *History and the Homeric Iliad* (Berkeley and Los Angeles 1959) 279-80.

Anton Schaumberg, *Bogen und Bogenschütze bei den Griechen* (Nürnberg 1910) 78, suggests that τριγλώχις represents a three-barbed arrow-head, but probably with a tang rather than

that a socketed three-bladed arrow-head, of Iranian provenience (both Scythian and Persian), was current throughout the Near East from the seventh century; but this type is *unbarbed*, with three *leaf*-shaped blades[3] (ill. 1, b). The similar (but distinct) three-barbed arrow-head, perhaps of Balkan origin, appeared later, possibly in the fifth century.[4] Few Homerists would make the Iliadic references so recent.

Fifty-nine years ago Reichel put forward another explanation.[5] Since, for all its merit, it has fallen by the wayside, the time is now ripe for it to be restated. Γλωχίς means "any pointed projection" (vid. Liddell-Scott-Jones, *A Greek-English Lexicon*, s. v.; cf. γλώξ, γλῶσσα). Τριγλώχις, "three-pointed," is inappropriate for an arrow with three barbs as well as a point. It is suitable for a two-barbed arrow; it could describe the two-barbed *tanged* arrow-head which has been known since prehistoric times[6] (ill. 1, d). But it seems singularly apt for the "arrow-plate" (Myc. *paltaion?*) often found at Mycenaean sites.[7] This is an arrow-point of sheet bronze, with a deep basal notch separating the two barbs; it is frequently perforated, to facilitate binding to the shaft (ill. 1, c). The arrow of Pandaros, with its ὄγκοι and sinew-lashing (*Il.* 4.151, 214), perhaps represents the same shape. One must therefore concede the possibility that the epithet τριγλώχις is traditional, and reflects a Mycenaean original.[8]

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with a socket; this also is a Scythian type; Edmund Bulanda, *Bogen und Pfeil bei den Völkern des Altertums*, *AbhWien* (archäol.-epigr.) 15 (1913) 59, fig. 42.

Another scholar who at least recognized the etymological problem was Petrie, who translated τριγλώχις as "three-tongued," and identified it as the three-bladed type; W. M. F. Petrie, *Tools and Weapons* (London 1917) 34; cf. C. N. Johns, *QDAP* 2 (1932-33) 56.

[3] Scythian in origin; R. D. Barnett and W. Watson, *Iraq* 14 (1952) 134. Persian; D. M. Robinson, *Excavations at Olynthus* X (Baltimore 1941) 397, n. 83; Erich F. Schmidt, *Persepolis* II (Chicago 1957) 99; cf. Stefan Przeworski, *Die Metallindustrie Anatoliens in der Zeit von 1500-700 vor Chr.* (Leyden 1939) 61.

Early dated specimens include: Alişar IV, before 680, H. H. von der Osten, *The Alishar Hüyük, Seasons of 1930-32* II (Chicago 1937) 441; Megiddo III, before ca. 650, R. S. Lamon and G. M. Shipton, *Megiddo* I (Chicago 1939) pl. 80, no. 27; a tomb in Amman, ca. 650, G. L. Harding, *PEFA* 6 (1953) 56, 70; Urartu, perhaps from the Scythian invasion of 625, Barnett-Watson, *Iraq* 14 (1952) 138, fig. 12; Samaria VII, before ca. 625, Kathleen M. Kenyon *apud* J. W. Crowfoot *et al.*, *Samaria-Sebaste* III (London 1957) 452-53, nos. 11, 14; Sultantepe, from the Scythian invasion of ca. 610, Seton Lloyd, *AnatSt* 4 (1954) 106, fig. 6, no. 5; Smyrna, from capture by Alyattes of Lydia, ca. 600, unpublished, in Izmir Museum (cf. J. M. Cook, *JHS* 67 [1947] 41-43); in Egypt only after the Scythian invasion of 630/25, Petrie, *op.cit.* (supra n. 2) 34; in Cyprus before 600, Einar Gjerstad, *The Swedish Cyprus Expedition* IV:2 (Stockholm 1948) 214 (type 4).

The oldest examples in Greece may date from the Persian invasions; Marathon, Edward Dodwell, *A Classical and Topographical Tour through Greece* (London 1819) II 159; Thermopylae, E. P. Blegen, *AJA* 43 (1939) 698; cf. *AA* (1940) 201-02; Athens, Agora, H. A. Thompson, *Hesperia* 6 (1937) 14; 27 (1958) 151; Suppl. 4 (1940) 33; Athens, North slope of Acropolis, O. Broneer, *Hesperia* 2 (1933) 341-42; 4 (1935) 114; Olynthus, Robinson, *Olynthus* X 398.

[4] Originated in Balkan peninsula; Robinson, *Olynthus* X 405; Agnes Newhall Stillwell, *Corinth* XV:1 (Princeton 1948) 121. Examples found in Graeco-Scythian graves, fourth century, E. A. Gardner, *JHS* 5 (1884) pl. xlvi, 5; Corinth, fourth century, Gladys R. Davidson, *Corinth* XII (Princeton 1952) 200, no. 1516; Olynthus, from destruction in 348, Robinson, *Olynthus* X 406; Cyprus, not before 475, Gjerstad, *op.cit.* (supra n. 3) 214 (type 6).

[5] Wolfgang Reichel, *Homerische Waffen* (Vienna 1901) 115 and fig. 59; repeated by Bulanda, *op.cit.* (supra n. 2) 107.

[6] Mycenaean types include tanged arrow-plates (Sir Arthur Evans, *The Palace of Minos at Knossos* IV.2 [London 1935] 838ff; C. W. Blegen, *Prosymna* [Cambridge 1937] 340f; M. S. F. Hood and P. de Jong, *BSA* 47 (1952) 272, III (18) f; C. W. Blegen *et al.*, *Troy* III [Princeton 1953] 270) as well as heavier barbed points with sturdy tang (C. W. Blegen, *AJA* 59 [1955] pl. 25, fig. 7; Blegen *et al.*, *Troy* IV [Princeton 1958] 51). Arrow-heads depicted on Geometric and Archaic pottery are usually barbed; Schaumberg, *op.cit.* (supra n. 2) 97, 113. In Classical and Hellenistic times, one recurrent type is tanged, with two barbs and a stop-ridge; it has been identified with the famed *Cydonium spiculum* of the Cretan mercenary (E. J. Forsdyke, *Proc. Soc. Antiq. London* 2nd s. 32 [1919-20] 155-57).

[7] From Chalkis, V. Hankey, *BSA* 47 (1952) 94, who cites earlier publications; and add examples from Athens (E. D. Townsend, *Hesperia* 24 [1955] 216, no. 29), Pylos (Blegen, *AJA* 59 [1955] pl. 25, fig. 8) and Troy vii b (Blegen *et al.*, *Troy* IV 239); cf. M. Ventris and J. Chadwick, *Documents in Mycenaean Greek* (Cambridge 1956) 356, 361.

[8] Page, *op.cit.* (supra n. 2) 279, suggests that perhaps a traditional phrase is "to be found in, or under the surface of . . . οὐατων τριγλωχινι."

BOOK REVIEWS

Authors and publishers are respectfully requested to note that all books for review must be sent directly to the review editors: for Old World archaeology to Miss Dorothy K. Hill, The Walters Art Gallery, Baltimore 1, Md.; for New World archaeology to Dr. Richard B. Woodbury, Department of Anthropology, University of Arizona, Tucson, Arizona. The review editors will be glad to receive any suggestions from authors as to names of possible reviewers. Under no circumstances should a book be sent to a specific reviewer.

KÖSTEN, EIN WERKPLATZ DES PRAESOLUTRÉEN IN OBERFRANKEN, by *Lothar F. Zotz*. (Quartär Bibliothek, Vol. 3.) Pp. x + 145, figs., pls., diagrs., maps. Ludwig Röhrscheid Verlag, Bonn, 1959.

This monograph deals with the important stone age industries found at Kösten and Schönsreuth, on the banks of the Main River, in Upper Franconia, Germany.

Following a polemical introduction on recent trends in palaeolithic research, the monograph proper opens with a detailed discussion (by G. Höhl) of the geography and physiography of the upper Main valley. The sites of Kösten and Schönsreuth, both surface stations, are located on top of a Lower or early Middle Pleistocene terrace, magnificently overlooking the Main valley. Independent geological evidence leads to the conclusion that ". . . all attempts to date the terrace on the basis of the artifacts found on it are erroneous. The terrace was in existence long before it was occupied by Man" (p. 11). Conversely it is not possible to date the stone industries in terms of the sites' geology.

The geological section of the monograph is followed by a chapter dealing with the history of research at Kösten and Schönsreuth. Both stations have been known for nearly fifty years. The peculiar nature of the lithic industries did repeatedly attract the curiosity of many luminaries of Central European prehistoric research, such as H. Obermaier, F. Wiegers, F. Birkner—to mention only a few.

With chapter 4 begins the discussion of the finds. Nearly 99% of all artifacts are made of a shaly quartzite which occurs abundantly in the Main River in the form of more or less tabular, flat pebbles.

From the onset it was clear that more than one stone age complex was represented at Kösten and Schönsreuth. The problem was that of sorting out the various components. Classification according to patination proved to be of no avail. Though five such stages of preservation could be distinguished, these did not reflect chronological stages which in turn might comprise definable assemblages. The degree of patination seems to depend upon the specific sub-varieties of raw material, and upon a given specimen's location in the ground or on the surface. As a criterion of age, the patination factor therefore proved to be useless.

The only other way to arrive at a significant classification of the industries involved, was to separate the various components along purely typological lines.

Although this was eminently successful, Zotz hastens to point out that this kind of procedure does lead to the occasional wrong classification of a few more or less atypical specimens.

The most significant series of tools clearly belongs to the Middle Palaeolithic period. The diagnostic types are quite evolved hand-axes (17%), and leaf-shaped points (24%). The two forms tend to intergrade. The best leaf-shaped points are not only very thin and well-flaked, but they are also characterized by fine marginal retouch.

It should be noted that the precise forms of both hand-axes and leaf-shaped points are to a considerable extent conditioned by the tabular nature of the raw material.

Broad flake-blades with occasional untidy retouch flaking are very common (28%). Some of them have faceted striking platforms of Levalloisian style. A few of the broad flake-blades grade into leaf-shaped points; such specimens show varying degrees of unifacial and bifacial shallow flaking, covering the surface(s) of the artifacts in question. This seems to indicate that the highly characteristic leaf-shaped points are derived from two sources: hand-axes (cores) and flakes.

In addition, a series of ill-defined flake scrapers (8%) and points of sorts (7%) should be noted. A class of carefully flaked core implements made on small pebbles (14%), often with one face formed by pebble cortex has been identified and grouped according to the tools' general shape as discoidal scrapers, square scrapers, etc.

Such forms which, as a rule, are not common in the European Middle Palaeolithic, remind this reviewer strikingly of certain forms commonly associated with the later pebble tool industries of Asia and Africa.

This reviewer disagrees with Zotz as to the use of the term "microlith" in describing sundry small flakes that seem to belong to the Middle Palaeolithic complex of Kösten. The term "microlith" should be reserved exclusively for the geometric forms usually (at least in Europe) found in Mesolithic industries.

Since the leaf-shaped points associated with hand-axes and flake tools of Kösten-Schönsreuth would seem to place the industry into the time range of the Middle Palaeolithic Mousterian, the absence of such normally ubiquitous Mousterian forms as racloirs and points is very curious.

The later archaeological remains of Kösten-Schöns-

reuth can be dealt with summarily. They consist of an Upper Palaeolithic series, ". . . of Late Aurignacian character . . ." (p. 118), with blade cores, plain and retouched blades, saws, end-scrapers on blades, burins, etc. In addition there are certain tools that may be of mesolithic and/or neolithic age.

Zotz considers the principal industry of Kösten-Schönsreuth to be part of the Central European Pre-Solutrean complex. Within Germany this industry compares favorably with the finds from such sites as the Weinberg Caves near Mauern in Bavaria, and the Balver Cave in Westphalia. Both sites yielded considerable stratigraphic evidence which permits us to venture an educated guess as to the temporal position of Kösten-Schönsreuth. On this basis, it is suggested that the industry discussed here dates from ". . . the period between the Würm I and early Würm II . . ." (p. 140) stadials. On typological grounds the Kösten-Schönsreuth complex should be classed with an early but unspecified phase of the Pre-Solutrean.

In a wider geographical and cultural sense, Kösten-Schönsreuth is related to the broad Middle Palaeolithic horizon with leaf-shaped points of Central and Eastern Europe, a horizon which in recent years has become increasingly more important to the study and understanding of the European Old Stone Age.

The monograph reviewed here represents a very substantial contribution to European prehistory. The material is well organized, lavishly illustrated, and concisely informative.

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Der Überfangguss. Ein Beitrag zur vergeschichtlichen Metalltechnik, by *Hans Drescher*. Pp. 192, Tafel 43. Verlag der Römisch-Germanischen Zentralmuseums, Mainz, 1958.

This book provides an exceedingly valuable contribution to our knowledge of the technical methods of the craftsmen responsible for the splendidly designed and constructed tools, weapons and ornaments, made or repaired by bronze casting in Central and Northern Europe during the first millennium before our era.

The title "Der Überfangguss" has no exact equivalent in English. It represents the "casting-on" to an existing bronze object of an additional part or parts, in order to complete or to repair it. The material of the book is well arranged, the detailed drawings and the plates are clear and well chosen. The indices are reliable, though there seems to have been some difficulty in spelling the find-spot of the Whittingham Sword. There are several pages of useful metallographic sections. The detailed account of the restoration of the wheels of the ninth-eighth centuries B.C. sacred wagon, now in the Museum of Stade, is a good example of the work now being done in some of the museum laboratories of the world.

In the period covered by the book, the use of cast bronze as the material for the construction of innumerable domestic, religious and warlike objects had led to the growth of a body of skilled bronze founders to whom the construction or the repair of these objects was a matter of daily practice. The adaptability of these craftsmen was remarkable, as the variety of workmanship demonstrated by specimens in our museums shows. We may consider the construction of a Mörigen sword, such as that from Wismar, in which on to an already formed bronze blade there was "cast-on" an efficient hollow bronze handle. Or the more elaborate bronze mould for casting the handle of a Mörigen sword, now at Munich. This mould is in several parts, complete with pour. The sword handle cast in it is in one piece, with a well-formed hollow into which the tang of the blade would fit. A fibula might be required, decorated with a series of beaded forms, all hollow-cast at one time, and supported on a strong iron bow. Again, the use of a bronze mould for the simultaneous casting of a number of links for a bronze chain, is demonstrated.

For the repair of an existing bronze object a number of interesting examples are shown. It will be remembered that a defective bronze casting was no uncommon feature in the day's work of a founder. A Greek or Roman statue founder might discover a number of blowholes or other defects in his casting. Now a modern founder would deal with any such situation by drilling-out and tapping with a screw thread the offending cavity, and then plugging it up with a bronze screw. He would saw off the projecting part of the screw and smooth away any unevenness. The Greek or Roman craftsman had no ready-made taps and dies, so he cut a rectangular recess about the blowhole, and inlaid a small piece of bronze, of about the thickness of a penny, and fixed it in position by hammer and punch. In the course of centuries many such inlaid patches have been lost, and the recesses reveal both the original fault and the method followed by the repairer. A Teutonic or Norse craftsman proceeded in a different manner. He scraped the edges of the defective area down to clean metal, and then formed a suitable core beneath the hole and provided a "pour" or channel in an outer mould for the entry of the metal. He might also make an overflow-hole, so that a good body of molten bronze might be poured into the funnel-shaped hollow above the defective area, much of the liquid being allowed to escape through the overflow hole. By the passage of much molten metal into and through the mould, the metal round the fault would become so hot that the new metal would fuse to the old, filling up the gap. When cooled, all unrequired projecting pieces would be sawn off and the surface tidied up.

The book demonstrates the ingenuity and practical skill of the early craftsmen in dealing with the great variety of problems presented to him in his daily work,

and will prove a valuable guide to everyone interested in the technology of the Late Bronze and Early Iron Ages.

HERBERT MARYON

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PATTERN AND PURPOSE. A SURVEY OF EARLY CELTIC ART IN BRITAIN, by *Sir Cyril Fox*. Pp. 160, illus., pls. 80. The National Museum of Wales, Cardiff, 1958.

This thorough survey of Early Celtic Art of Britain, from the third century B.C. to the first century A.D., is a masterpiece of its kind. The author, formerly the Director of the Museum of Wales, was able to capture in it his keen scholarly enthusiasm as well as the results of years of devoted research. His profound knowledge and the astonishing scope of his thinking are reflected in the ease with which he treats the subject. The book is primarily about Celtic archaeological finds, largely objects in metal, bronze and iron. All the important finds and objects are described, related to one another, and defined in terms of their forms and decorative designs as parts of an entire stylistic complex. All the changes observed are considered as depending on particular workshops. Suggestions for the location or dating of these workshops have been made on the basis of available evidence. The objects, however, are not treated *per se*, but are related to Celtic customs, ceremonials, and history. The text is thus made very lively and of sparkling interest. The reader is presented with a fairly complete image of the whole civilization and its history, yet the text does not appear to deviate from its main archaeological purpose. The author's ability to present Celtic art in its total context is quite exceptional, and should serve as a model for other archaeologists.

All the artifacts collected, described and illustrated possess unusually close affinities of decorative vocabulary. The homogeneity of the forms might suggest more than a "unity of style" as defined by the author. They might presumably have been made in one production center, possibly in the tradition of a single workshop. Stylistic differences seem often to be those of various hands, rather than different workshops, places and periods. The validity of this supposition could be vindicated only by spectroscopic and other types of analyses, which would show whether the metal originated in one source or in several, and whether the objects were made in one workshop based on one supply point, or in several workshops, drawing their supplies from various places. Such analyses, when correlated with the actual metal deposits would definitely establish the provenience of the metal objects. At present the attribution of British or continental origins is based solely on the distribution of the finds. The objects are, however, portable, and the evidence of distribution is not incontrovertible. It is at best circumstantial.

The meaning of the Celtic artifacts may be of importance. Were they trinkets, sold on the market to anyone, or were they social and religious symbols of rank and authority, connected with ceremonial and ritual, reserved for leaders and priests? If they had no meaning it is possible to speculate that they were dispersed commercially, or made by itinerant metalworkers. This is the theory accepted by Sir Cyril. If, on the other hand, they were tribal symbols, probably heirlooms, they must have been made for a society and distributed under the control of a central authority. We know that metalcraft itself was organized as a hierarchic group within the society it served. The highly specialized knowledge of metal production would have remained secret. Neither the knowledge, nor its products, the metal objects, would have been traded freely, at least not to strangers. From this point of view the finds would have historical significance, recording the spread, often a migration, of a particular social and political organization, its movements and expansion. Its starting point might, in time, be located by the scientific determination of the source of metals, the place which gave rise to the creation and development of the metal industry. It is notable that this industry did not survive, and the forms and designs in metal are confined to this period of four centuries. Perhaps the society which produced this metal work was cut off, or migrated, from the region where the existence of the ores made the metal industry possible. This would account for the discontinuance of metalwork of this type. Such a method of approach seems appropriate for further study of this subject.

Sir Cyril's book is certainly definitive in the field of British Celtic art, but in a specific sense. This type of research, method of approach, and thinking, can scarcely be carried farther. As an apex of one period's achievement it is a most brilliant work. The author does not purport to solve all the problems, and when suggesting a solution never speaks ex-cathedra, but marshals his evidence to state his opinion as such, not as an established fact. The growing interest in Celtic studies, the integration of insular evidence into the overall picture presented not only by continental finds, but by Asiatic ones as well, may bring forth ideas on the subject. The present work will no doubt be enormously helpful in any such re-evaluation.

B. PHILIP LOZINSKI

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PHARAONIC POLICIES AND ADMINISTRATION, 663 TO 323 B.C., by *Mary Francis Gyles*. (The James Sprunt Studies in History and Political Science Published under the direction of the Departments of History and Political Science of the University of North Carolina, Volume 41.) Pp. vi + 120. Chapel Hill, The University of North Carolina Press, 1959. $2.50.

This is the outgrowth of a dissertation written with

Professor Caldwell, but its origins go back to work done with Professor Frankfort at Chicago. Miss Gyles has a sure foundation in the languages and archaeology of the Near East, but she writes here, according to her preface, as an historian, checking translations only when it seemed necessary. She was able to visit Egypt and to study in Brussels, and acknowledges help from many scholars including our ablest apostle of late Egyptian studies, Bernard V. Bothmer. The result is a brief but rather ambitious account of Egypt from the Twenty-Sixth Dynasty to Alexander, divided about equally between history (Chs. II-III) and institutions (Chs. IV-VII), primarily kingship, for the author's aim is to show "the theoretical basis on which the kingly office rested throughout these years, and also to show how and why it filled the needs of Egypt in practical operation" (p. 12). At the end (p. 97), after a brief look at the Ptolemies, she concludes: "The Egyptian king personified Egypt. He was Egypt. In him the Egyptians saw all their national aspirations, all their effectiveness as a community. Without him there was no unity. Bound by tradition, yet benefiting from its framework, the Pharaoh existed as the real, not merely symbolic, embodiment of nationalism and patriotism. When the identification was complete, both Pharaoh and Egypt were strong. When it was incomplete, both were weak."

It is easy to recognize not only Frankfort's influence here, but also that of Wilson, and it may be that this is an attempt to extend their theories into this late and poorly documented period to see if they fit. At all events, this is the most interesting and original part of the book. There have been a number of histories of later Egypt in recent years, some cited by the author (Kienitz, Mallet, De Meulenaere, Posener, Kees) and some not (Petrie, Gauthier, Pirenne, Elgood, von Zeissl), and her service is to relate each event to the sources in Greek, Persian or Egyptian. Her documentation is very detailed, and this is good, especially in the second part, as in Ch. VI, "Internal Organization of the Kingdom," where she breaks newer ground. This is good and rewarding reading. Note especially the plan on p. 76 showing the administrative system under Psammetichus, which presents graphically the marked differences between the Eighteenth Dynasty on the one hand and the Ptolemaic Kingdom on the other. This is particularly valuable for the student of the early Ptolemies.

The book is useful, and the author is to be congratulated and encouraged to pursue her studies in this interesting area. On the other hand, she should be reminded that one must check references over and over again. Ch. I, "The Sources," overlaps the twelve pages of bibliography, and yet a number of authors cited in the first place do not occur in the second, where also there are odd things. Section I, "Primary Sources," lists Cowley and Curtius, Polyaenus and Posener, Sappho and Schaedel, indiscriminately, and the "Secondary Sources," i.e. modern bibliography, are divided for no apparent reason into those published before and after 1950. Misprints and misspellings are frequent, and such repeated spellings as "Rechtgeschichte" (Rechtsgeschichte) and "Léfèbure" (Lefebvre) indicate something more than a slip of the moment. The Loeb *Oeconomica* in the Aristotle corpus is called "4 volumes," and the Diodorus appears as ten volumes edited by C. H. Oldfather. (The Loeb Curtius is ignored, and the reader is referred to a translation dated 1858.) On p. 34, n. 92, "Cowley, *Aramaic Papyri*, no. 13, a marriage contract" (it is actually the conveyance of a house) turns out to be no. 14, a settlement of a claim; and the document does not show "friendliness between Egyptian and Jew" but a possible instance of intermarriage; in general, Egyptians and the Jews of Elephantine did not get along well together; cf. Cowley, p. xvii. And of two Biblical quotations on p. 29, one is an incomplete sentence and the other is unintelligible because of two bad misprints. It is not so important, of course, that Philochorus appears as "Philokoros" or Lachish as "Laschish" but this kind of inaccuracy distracts a reader and undermines his confidence. Grenfell and Hunt were not Demoticists (p. 10). We may agree with the author in regretting "that certain source material remains inadequately published," but it seems odd to deplore "that other important documents quite probably remain undiscovered" (p. 12). More seriously, it is quite unsound to speak of Diodorus (i.e. Hecataeus, cf. p. 9) as presenting "a most depressing picture of one of the later Ptolemies, who obviously did not control the religious aspects of the Egyptian kingship but was rather controlled by them" (p. 56) without recognizing that 1) Hecataeus wrote under Ptolemy I, and 2) that his picture of Pharaonic Egypt was an idealization, intended to bring favorable attention upon Ptolemy, the continuator of the Pharaohs.

These are beginner's errors, and I would not exaggerate them. On the other hand, it is the courtesy of the profession that scholars are ready to read and to criticize each other's manuscripts. Such a reading here would have eliminated most of these blemishes, and made it easier for the author to tell her story.

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THE TOMB OF TJANEFER AT THEBES, by *Keith C. Seele*. (Oriental Institute Publications, Vol. 86.) Pp. x + 10, pls. 41. University of Chicago Press, Chicago, 1959. $7.50.

The tomb of Tjanefer is no. 158 at Thebes (Dra Abu'l Naga) and is notable for being the only Theban tomb to have the remnants of a *stone* pylon before its forecourt. The work reviewed here is the result of more than twenty years of the author's association with Tjanefer, his initial studies of the Tomb having been presented to the University of Chicago as his dissertation in 1938 (unpublished). Dr. Seele has examined closely Tjanefer's career and his family relationships and, though the tomb has suffered much in antiquity and in more recent times, by painstaking study of the

surviving inscriptions and external material Seele has put together a convincing picture of a man who by birth and marriage was well-connected in the Theban priesthood. A single occurrence of the title in the tomb (p. 5 and pl. 29:B) attests to his having held the High-Priesthood of Amun; his wife was the granddaughter of the well-known High Priest, Bekenkhonsu (see pp. 6-7 for discussion of the Bekenkhonsu problem); his eldest son (Tomb No. 148) held high offices in the priesthood and was the brother-in-law of a High Priest of Amun. Like most of the Theban tombs, Tjanefer's was (not too long after his death) broken into and stripped of its rich furnishings. Unlike many others, however, this event is given particular notice because of the preservation of the confession of the thieves who entered the tomb.[1]

The only evidence in the tomb for dating Tjanefer's career is found on pl. 29:C: a fragment showing one upraised arm of Tjanefer before a kiosk, the interior of which is inscribed with the Horus name, "Mighty Bull, Beloved of Maat" (*k3 nḫt mry Mȝ't*) and part of a cartouche (of which survive the sign *r'* and the ears of *wsr*). Seele reads the cartouche as the praenomen of Ramesses II (*Wsr-mȝ't-R'-stp-n-R'*), who of course bore the Horus name, *k3 nḫt mry Mȝ't*. The reviewer would suggest the consideration of another possibility (as pointed out by Seele, p. 8), that is, *Wsr-ḫpru-R'-mry-'Imn*, Seti II who also bore the Horus name of pl. 29:C. This would more satisfactorily, in the reviewer's opinion, account for what otherwise seem unusually long lives for Tjanefer, his wife, and their children (see pp. 5-10).

At the same time, such a reconstruction might help to explain the curious scene on this same fragment (pl. 29:C). The kiosk as shown is so made as to require that the king (undoubtedly seated or standing within the kiosk) be on the same level as Tjanefer, who raises his arms toward the king. Such a position is paralleled at this early date only in the tomb of Userhet (No. 47), who was priest of the cult of Tuthmosis I in the time of Seti I. It is strange to see such a scene even though the king is represented there as a statue.[2] There is no evidence, however, that Tjanefer was connected with the mortuary cult of Ramesses II, and it seems reasonable to interpret pl. 29:C, with Seele, as the king bestowing favors upon Tjanefer. It seems to the reviewer that Tjanefer would scarcely have had the temerity to portray himself as the equal of the pharaoh, Ramesses II (Tjanefer must still have been quite young at the end of the latter's reign); whereas the lesser Seti II might more easily have enjoyed the impertinence of a leading member of the priesthood. The usual representation of a king (whether he be living or represented as a statue) in a kiosk, or of the king dispensing favors from a window of appearances (which is unlikely here), shows the king either substantially larger than the private person or at least raised prominently above him.[3]

Two equally curious scenes are found elsewhere in this tomb. On pl. 24 Tjanefer is seen standing behind a tiny figure of a king wearing the blue crown. What this scene signifies is difficult to determine because of its shattered condition. Pl. 8 shows a king, again in the blue crown, standing on the prow of a sacred bark. Neither of these scenes is paralleled, to the reviewer's knowledge, in other private tombs of the Ramesside period.

Two other reliefs of interest should be noted. The Goddess of the Tree is pictured on pls. 11 and 15 and has been discussed elsewhere.[4] The tree is peculiarly rendered, with strange leafless, tentacle-like branches, and while bearing a few figs it is probably a sycamore tree.[5] Also of importance is the appearance here of a Harper's Song, with a poignant figure of the blind harper singing his song (pls. 12 and 14).[6]

Although one might have hoped that the author would have lent his wide knowledge of Egyptian studies to a more detailed discussion of the reliefs in the tomb of Tjanefer (a descriptive list of plates would have helped), Dr. Seele is to be praised for his careful examination of that ancient priest's place in the Theban hierarchy and the wide connections of his family, and the Oriental Institute is to be commended for issuing the sumptuous publication in which that examination appears.

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HETHITISCHE TOTENRITUALE, by *Heinrich Otten*. (Deutsche Akademie der Wissenschaften zu Berlin, Institut für Orientforschung, Veröffentlichung Nr. 37.) Pp. 156. Akademie-Verlag, Berlin, 1958.

For a long time practically nothing was known about Hittite burial rites. Since 1936 the German excavations at Boğazköy have yielded both archaeological and philological evidence. To everybody's surprise it testifies to the existence of cremation among the Hittites already high in the second millennium. The burials

[1] T. Eric Peet, *The Great Tomb-Robberies of the Twentieth Egyptian Dynasty* 60-61. See also Gardiner in *JEA* 22 (1936) 187.

[2] N. de Garis Davies, *Two Ramesside Tombs at Thebes* pl. 5.

[3] The famous case of a private person assuming an equal place with the king is that of Tjanefer's son's brother-in-law, the High Priest Amenhotep (Ramesses IX at Karnak), W. Stevenson Smith, *Art and Architecture of Ancient Egypt* pl. 161. See too N. de Garis Davies, *The Tomb of Ken-Amun at Thebes*, vol. I, pl. IX, where Kenamun's mother is seen holding the youthful Amenhotep II on her lap. She was the king's nurse.

[4] Marie-Louise Buhl, "The Goddesses of the Egyptian Tree Cult," *JNES* 6 (1947) 92-93.

[5] For a more usual form of the tree see N. de Garis Davies, *Seven Private Tombs at Kurnah*, pl. XXXV, top (*temp.* Ramesses II).

[6] Miriam Lichtheim, "The Songs of the Harpers," *JNES* 4 (1945) 206-07. See too Varille, "Trois nouveaux chants de harpistes," *BIFAO* 35 (1935) 154-57 and pl. I. The head of the harper is now in Berlin, apparently taken there by Lepsius.

that have been found are located in the rock outcroppings outside the walls of the ancient capital. They have since been published in a separate volume.[1]

The philological material consists of numerous fragments of inscribed clay tablets, the remnants of a series which described the ceremonies to be performed when a king or a queen had died. These ceremonies extended over fourteen days. The series which after the beginning words is called *man šalliš waštaiš kišari* "when a great *w.* occurs" cannot yet completely be reassembled. What has survived is transliterated and translated by the well known Hittitologist H. Otten in the publication under review. Although much detail remains unintelligible or entirely unknown, enough has come down to us to sketch the main lines of the ritual. The reconstruction is facilitated by some fragments which summarize the events day by day. Add to them the text published by Otten in *Die Welt des Orients* 2 (1959) 477ff. The resulting picture is as follows:

1st day: when the death occurs all normal activities stop.
2nd and 3rd day: (unfortunately not preserved). Probably erection of the funeral pyre, cremation of the dead, sacrifices of horses and cattle. Then ossilegium (known in detail).
4th to 6th day: *lelawar* and *mugawar*, i.e. mourning rites in which mourning women play a part.
7th day: burning of the *ezzan* (see below).

Up to this point the ritual seems to be concerned with the disposal of the body. Before the ashes are brought to their final resting place (on the 14th day?), a good many additional ceremonies take place, in part at least at a "tent" on the way to that place. As ceremonies performed in such tents on other occasions, they are essentially of a magic nature and seem to be connected with fertility. They are probably specific to a royal burial, maintenance of prosperity being the most important function of a king. Only the 12th and the 13th days are better known:

8th day: water is drawn (to the place of the ritual) by a "pig"; (a piece of) "meadow" is cut out.
9th day: ?
10th day: day of the plough.
11th day: hunting.
12th day: cutting of the vine.
13th day: *laḫanzana* birds.
14th day: to the "stone house" (i.e. mausoleum) (?).

A few remarks on details:

Title: the noun *waštaiš* can here hardly be translated by "crime," the usual meaning of the word. The phrase "a great *w.* occurs" must contain a euphemism for "die." As does the corresponding Akk. *ḫīṭu* (*ḫiṭṭu*) —thus also Otten—*waštaiš* must also denote "blemish, failure, misfortune."

1st day: characteristic is the verb *šakuwantariyanu-* "put to rest" (KUB XXXIX 1 ii 21); furthermore "abstain from drinking tubes" (necessary for consuming beer, a basic food) (KUB XXX 16 i 3f).

2nd and 3rd day: the previously burned heads of horses and cattle are mentioned, e.g., KUB XXX 25 obv. 20.

7th day: The word *ezzan* can hardly mean "salt" (as Otten, influenced by H. G. Güterbock, *JCS* 6 36f assumes). This is not the place for a philological treatment of the word; I believe it is the personal property of the dead that is burnt here.

8th day: For the concept of the "meadow" see presently.

11th day: The only passage where the reading *ḫurna-* (not *ḫarna-*) is certain, deals with hunting. This is a typically royal activity (cf. my *Kleinasien*[2] 92).

12th day: The "cutting" of the vine is not a destructive action, but, on the contrary, has to do with the care of this important plant: Cf. *Hitt. Code* §113.

14th day: The relation between "stone house" and "bone house" still remains obscure; cf. H. G. Güterbock, *MDOG* 86 (1953) 75f; A. Goetze, *JAOS* 74 (1954) 189; H. Otten, *OLZ* (1955) 389ff.

A remarkable idea is that of the "meadow" (Ú.SAL = Hitt. *wellu-*) with its herds to which the king is believed to go (see Otten 139f). This differs so drastically from the stark pessimism of the Ancient Near East of which Hittite texts contain reflections, that the view is justified that we are dealing here—as may be the case with cremation—with beliefs and practices introduced into Asia Minor by the Indo-European masters among the Hittites.

Everybody familiar with Homer will, of course, feel reminded of the burials of Patroclus and Hector. However, as Bittel (*MDOG* 78 [1940] 12ff) has rightly remarked, the similarities do not go beyond details such as one must almost automatically expect wherever the dead are cremated.

Otten has done Hittitology in particular and Anatolian archaeology in general a great service by making these fragments available to all those interested. One can only hope that future finds will more and more fill in the gaps that even his industry and acumen were unable for the time being to restore.

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[1] K. Bittel (and others) *Die hethitischen Grabfunde von Osmankayasi* (=71. Wissenschaftliche Veröffentlichung der Deutschen Orient-Gesellschaft, 1958). Reviewed by M. Mellink, *AJA* 63 (1959) 291f.

DE LA PLAINE PAMPHYLIENNE AUX LACS PISIDIENS: NOMADISME ET VIE PAYSANNE, by *Xavier de Planhol*. (Bibliothèque archéologique et historique de l'Institut français d'archéologie d'Istanbul, III.) Pp. 495, figs. 57, pls. 64. Librairie Adrien-Maisonneuve, Paris, 1958.

This volume, the third in the reactivated series published by the French Archaeological Institute in Is-

stanbul, will be of interest to the historian and archaeologist concerned with Asia Minor. Although the principal aim of the author is the study of the recent evolution of peasant life and the struggle between nomadism and settled habits, the study is set against a detailed geographical and historical background.

The area investigated is the Pamphylian plain and the south Pisidian lake district, including the region of Burdur, Isparta and Eğridir, but excluding Pisidian Antioch to the North and Lycia to the West. The coastal zone is studied from Antalya to Manavgat-Side. The definition of the area was made on demographic grounds: the region of Elmalı, e.g., has its relations with the Lycian coastal plain of Finike and is therefore omitted from the present study.

The volume starts out with a description of the natural setting: the geological nature of the area, climate, vegetation, water supplies; a chapter well worth the attention of the ancient historian who is concerned with the factors which made habitation difficult, possible or attractive. The change in physical setting is emphasized in the distressing increase of deforestation even during the last century (p. 49).

The actual story of human occupation is dealt with in chapter II which opens with a sketch of the prehistory of the area. Unfortunately, our knowledge of prehistoric Pamphylia is extremely scant. Apart from the cave sites in the vicinity of Antalya, explored by K. Kökten, there is little to report from the coastal zone. The recent explorations in the Burdur region by J. Mellaart and his excavations at Hacılar (most recently *AnatSt* 9 [1959] 51-66) have demonstrated the importance of the earliest village settlements of neolithic Pisidia. The Pamphylian plain is thought to have been devoid of village settlements in the neolithic and Bronze Age periods (p. 66), a conclusion still doubted by the reviewer. The absence of mound formation in regions characterized by timber and stone architecture is a hampering factor. A prehistoric survey of Pamphylia has to be more detailed than a mere statement of the lack of tells or hüyüks. The author attributes a rather unexpected role to some Pisidian mountaineers during the period of the Sea Peoples, the Sagalassians being thought of as the Š'krwš of the Egyptian records (p. 68), with Maspéro and others but hardly with modern opinion, which would expect the Sea Peoples to be of coastal and seafaring origin.

The prosperity which the Romans brought to the area is still visible in the impressive architecture left in the mountains and plains. Side and Perge are the only sites currently under archaeological investigation (cf. A. Müfid Mansel, *AA* [1956] 34-120). The history of the Roman period and the vicissitudes in the Byzantine era are briefly sketched in the historical chapter, as are the Seljuk conquest and the later Turkish history. The importance of the city and port of Antalya has lasted through the various epochs to the present day.

The details of the story of human subsistence through the ages, its background and resources, its transformations especially with regard to the nomadic and settled ways of life, are somewhat beyond the scope of the archaeological reader, although the direct and careful observations by the author provide illuminating parallels with the hypothetical past as well as constant reminders of geographical realities.

The book is dedicated to the nomads and peasants of Anatolia. It bears the stamp of thorough dedication to the land and its people, and it will, in text and illustrations, prove a precious record of a stage of life which is about to be superseded. The region of Antalya has been chosen as a "pilot project" in economic rehabilitation. The imprint of hydro-electric plants and powerlines is going to dwarf that of Roman aqueducts within the near future. Some of the scenes illustrated in the present volume will soon be no more than nostalgic memories.

MACHTELD J. MELLINK

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THE ANTIQUITIES OF JORDAN, by *G. Lankester Harding*. Pp. xviii + 206, pls. 31, plans and maps 10. Thomas Y. Crowell Company, New York, 1959. $4.75.

No one but Harding could have written this book. As Director of Antiquities for the Kingdom of Jordan from 1936 until his departure in 1956, he was closely associated with all aspects of archaeological research. What had been a great enough responsibility—considering the resources at his disposal—was immeasurably increased when areas of Palestine proper, to the west of the Jordan River, became part of Jordan in 1948. Yet Harding was indefatigable in his journeyings from one point to another, keeping track of all the accidental discoveries and large expeditions operating in the country. His little green 1936 Ford roadster—which survived wrecks and thefts and was his faithful transport for his twenty years of service—could be seen one day at an Umayyad hunting-lodge well out into the desert to the east, on another at Père de Vaux's excavations at Tell el-Far 'ah; it might be parked near a third millennium B.C. tomb in the north near Tell el-Husn or by an Arab fort in Aqaba. Yet, like any other administrator, his task did not end with the field work; he must run an office and Museum in Amman in which the thousands of discoveries must be recorded, photographed, restored and displayed or stored. Presumably also he had to struggle constantly for the money to carry on his work—no easy task in a country with few natural resources and a small budget.

While Harding's experience and knowledge of Jordan's antiquities are unparalleled, he has restricted his attention in this volume to East Jordan with three exceptions in the Jericho district: Khirbat al-Mafjar (an Umayyad palace with beautiful mosaics), Qumran (the Essene monastery and Dead Sea Scrolls) and ancient Jericho itself. He therefore does not touch most

of the important sites in West Jordan which were part of his responsibility: Jerusalem, Samaria, Dothan, Ai, Gibeon, Shechem and many others.

This is a fascinating record for professional archaeologist, casual visitor, or interested arm-chair traveller. For in this small country we have clear and important evidences for man's history from its beginnings, perhaps two hundred thousand years ago, through all those eras and empires whose civilizations helped to mold our own. Here met and merged—peacefully or by invasion—Amorites, Aramaeans, Hebrews, Nabataeans, Egyptians, Assyrians, Persians, Greeks, Romans, Arabs, Crusaders, Turks and, most recently, the British. Here can be found the spectacular city defences of Jericho in the 7th millennium B.C., fine Byzantine churches, wonderfully preserved Crusader castles, beautiful mosques, Israelite walls and Herodian buildings, the amazing Nabataean rock-cut tombs of Petra, and the humble monastery of the Essenes.

Jordan is once more independent and actively investigating its historic treasures, often with the assistance of foreign institutions who are attracted by its fair and even generous Antiquities Law. For this interest and attitude, as well as for many concrete results, Harding must be accorded a large part of the credit. His book is beautifully written, combining simple and effective English with sound knowledge and a critical sense. No better guide could be put in the hands of a visitor to the country he loved so much and served so well.

A. D. Tushingham

THE ROYAL ONTARIO MUSEUM, TORONTO

Archaeological Survey of the Knossos Area, compiled by *M. S. F. Hood*. (The British School at Athens, published by the Managing Committee.) Pp. 24, figs. 3, 1 folding map. University Press, Oxford, no date. 17s. 6d.

This is a very useful little compilation for anyone interested in the archaeology of the Knossos area from Neolithic to Early Christian times. It tells us by means of a brief introductory text and a list of 169 tersely descriptive items with references to published and unpublished sources (such as Hutchinson's "Diary, 1938-1940") just what finds, chance or deliberate, have been made in the Kairetos Valley from the Old Venetian Aqueduct to the Isopata Royal Tomb, and locates them as closely as available information permits on a new large-scale map. A single brief example will show the method: "105. Hellenistic Pottery Kilns on the east slopes of the Acropolis (*BSA* xlv (1950) 165f. Cf. *JHS* lvii (1937) 138. Code No. 1937/4). D7." The last reference is to the map co-ordinates. This is not exciting stuff but it is a valuable record of a sort usually neglected, and which can only be properly done by those who have been long and intimately associated with a site. Mr. Hood and his colleagues of the British School are to be congratulated on a painstaking task well done, a task facilitated by the active cooperation of Platon and Alexiou. It is to be hoped that the accurate detailed plan of the Palace of Minos now being made by the School will soon be available; it is sorely needed by every student of Minoan architecture.

J. Walter Graham

UNIVERSITY OF TORONTO

Minoica. Festschrift zum 80. Geburtstag von Johannes Sundwall, published by *Ernst Grumach*. (Deutsche Akademie der Wissenschaften zu Berlin, Schriften der Sektion für Altertumswissenschaft 12.) Pp. viii + 465, text figs. 35, pls. 34. Akademie Verlag, Berlin, 1958. D.M. 89.

This handsome volume of thirty-six articles by an international group of friends and colleagues honors the eightieth birthday of the Finnish scholar, Johannes Sundwall. The title *Minoica*, as well as the choice of articles, commemorates Professor Sundwall's long-standing interest in the Cretan linear scripts and his very real contributions to Minoan epigraphy in several dozen articles, the earliest of which appeared in 1914. Current international interest in the Aegean scripts is testified by the fact that eleven countries contributed articles: Germany, America, Greece, England, Italy, France, Spain, Belgium, Bulgaria, and Russia. Contributors from this country are Bennett, Blegen, Henle, Mylonas, and Puhvel. The articles, which are arranged alphabetically according to authors, cover a number of different fields.

Following in the wake of Ventris' decipherment, this volume quite naturally devotes almost half its space to articles concerned with Linear B. Only two of these fourteen articles do not accept Ventris' Greek decipherment, and they are by two diehards who have already taken a critical position (Arthur J. Beattie, "The Spice Tablets of Cnossos, Pylos and Mycenae," 6-34, and Jane Henle, "A Note on the Sword Tablets," 192-96). Of the remainder many are of interest only to Linear B specialists, but others will be referred to by Mycenaean scholars in the wider sense. Carl Blegen ("A Chronological Problem," 61-66) questions the dating of the Knossos archives to the late fifteenth century and suggests that the presumed gap of two hundred years between them and the Pylos archives may be much smaller, perhaps even non-existent. Jaan Puhvel ("Helladic Kingship and the Gods," 327-33) discusses the influence of Minoan civilization on the Indo-European Helladic kingship and the linking of I-E male gods with Minoan female divinities. In a fascinating article F. J. Tritsch ("The Women of Pylos," 406-45) categorizes the tablets with women ideograms and concludes that his Class III (the women and children of the Aa and Ab tablets) comprises displaced persons from the countryside arriving at Pylos in the threat of an imminent catastrophe. To them were assigned both rations of food and work appropriate to women in time of siege.

Five articles deal with Hieroglyphic and Linear A, of which Meriggi's ("Zur Lesung des Minoischen A," 232-45) with a new concordance of sign values is the most ambitious. Since these articles were written during 1956-57, none takes cognizance of the proposed Semitic equations of Cyrus Gordon or of Maurice Pope.

Four articles are concerned primarily with linguistics. Of these John Chadwick's "Mycenaean Elements in the Homeric Dialect" (116-22) is of most interest to Mycenaean and Greek scholars.

The question of survival of the Aegean scripts is the subject of four articles, two of which deal with specific later scripts, Brandenstein with that of Side in Pamphylia (80-91) and Mitford with the Classical Cypriote Syllabary (260-75). Two others deal with the more elusive subject of the Greek tradition of Cadmus and the Phoenician letters: Biesantz, "Mykenische Schriftzeichen auf einer böotischen Schale des 5. Jhr. v. Chr.," (50-60) and Marinatos, Γραμμάτων διδασκάλια (226-31) in which he cites the Phoenician letters on Canaanite jars from Mycenaean Greece as possible confirmation of a Phoenician Cadmus in the second millennium.

Nine articles are concerned with more general topics: Bossert's on writing ("Sie schrieben auf Holz," 67-79), those of Alexiou (1-5) and Mme. Xenaki-Sakellariou (451-60) on Minoan gems, and six others on various aspects of Aegean archaeology. Mylonas ("The Grave Circles of Mycenae," 276-86) discusses the possible derivation of the tholos tomb type from the earlier grave circle. Helga Reusch ("Zum Wandschmuck des Thronsaales in Knossos," 334-58) defends the essentially Minoan character of the throne room and its decoration. Schachermeyr (365-80) reviews the archaeological evidence for the localization of Aḫḫijava and narrows the range to three possibilities—Mycenae, Rhodes or Cyprus. Buchholz in an important article (92-115) discusses the copper trade in the second millennium and the significance of the signs on copper ingots.

Minoica is a well produced volume of pleasing typography and excellent plates. Some misprints are perhaps inevitable in a publication using six different languages, not necessarily the native tongue of the contributor. The listing, in four and a half pages of fine print, of the publications of Johannes Sundwall is a striking testimony of the stature of this "Nestor of Minoan Epigraphy."

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Aghios Kosmas: an early bronze age settlement and cemetery in attica, by *George E. Mylonas*. Pp. xviii + 191, plans and drawings 64, pls. 182. Princeton University Press, Princeton, 1959.

In *Aghios Kosmas* Professor Mylonas has given us a straightforward, clear and lively account of an excavation, small in scale, which nevertheless yielded a surprising amount of interesting material and added new detail to our picture of life in the Aegean in Early Helladic days. We see a small group of villagers composed largely in all probability of people from the Islands, living by and off the sea as fishermen and traders in obsidian from the Island of Melos which had been the "metal" of mainland Greece as early as Neolithic times. They were quickly absorbed into the culture of the mainland, raised grain, domesticated animals and used the characteristic Early Helladic pottery for daily living. Yet they remembered the ways of their ancestors at solemn moments of ritual and burial. This is evidenced by the number of Cycladic pots and idols recovered from the graves.

For the history of Attica itself Aghios Kosmas provided a unique cemetery, for indeed Early Helladic graves are rare in all of Greece, and "yielded sufficient Early Helladic remains of a nature that would enable us to determine the appearance of a settlement of the Early Bronze Age in Attica." The village itself showed two levels of Early Helladic habitation and finally fell victim to destruction. It lay deserted for some six hundred years and then attracted new settlers of the Mycenaean Age who tried to maintain themselves by retreating behind fortification walls when the times of trouble which preceded and constituted the "Dorian" invasion came upon them. Finally, however, they thought it wiser to leave their exposed position on the jutting headland and deserted their village without a struggle.

The early buildings as well as the pottery of the first Early Helladic level had almost totally disappeared and, except for the bothroi which no longer occurred in Phase B, showed no distinctive features. The interest centers on Phase B from which a number of remarkably well-built houses were recovered. They had strong substructures of stone and long threshold blocks with pivot stones still *in situ*. The houses were clustered in irregular groups with party walls. Compared to the known type of houses of later periods they make a square impression and so conform to the picture of Early Helladic architecture already gained from other mainland sites. The same may be said of the pottery found in the houses. When the site was again inhabited in Late Helladic II and III there is no reason to suppose that it was anything but a typical Mycenaean village with no perceptible foreign element.

The cemeteries, of which there were two lying to the north and south of the village, consisted of group or family burials placed either in cyst graves constructed of large slabs or in graves built of smaller material bedded in clay. Many had doorways and some were approached by short passages. According to the excavators each grave was marked by boundary stones within which the funeral offerings were laid as well as in the grave chamber. One of the interesting observations made at Aghios Kosmas was the special character of much of the pottery in the cemetery. It was crude on the whole and often left in a leather-hard

condition without baking. The cemeteries too were almost the sole source of Cycladic ware.

The book is full of speculations concerning the origin of shapes and patterns, tracing many back to shells and small forms of sea life. They make interesting and stimulating reading for they are imaginatively and vividly and enthusiastically argued. However, as the author is himself well aware, few lead to definitive results. By their very nature such speculations are highly subjective; but it is salutary for the reader to be reminded that nowhere so much as in primitive arts and crafts are "things seldom what they seem."

A word of praise is due the excellent photography and the highly skillful collotype reproduction which has retained, far more than is usually the case, the contrasting values of light and shade and so the vividness of the original photograph. Indeed the choice of photographs adds to the interest of the text. In figs. 1 and 2 the loneliness of the coastal outpost is dramatized; in figs. 32 and 39 one is made aware of the problems of the excavator wresting his evidence from the encroaching sea.

There is only one point on which I must take issue with the author. In the absence not only of a third building level, but also of the varieties of painted wares characteristic of Early Helladic III, Light-on-dark and Dark-on-light, and of the characteristic shapes such as the tankard and the cup with everted rim and high-swung handle, there seems no reason to believe that the two levels of Early Helladic at Aghios Kosmas cover the whole range of Early Helladic culture. The catastrophic ending must have come some time at the end or just after Early Helladic II.

HETTY GOLDMAN

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HISTORY AND THE HOMERIC ILIAD, by *Denys L. Page*. (Sather Classical Lectures, volume 31.) Pp. vi + 350, figs. 14. University of California Press, Berkeley, 1959.

The title's promise of both breadth and precision is abundantly justified in six chapters, much expanded from the original lectures and accompanied by full and argumentative notes, and an appendix. From an impressive variety of sources and techniques Professor Page has illuminated the whole historical setting of the Trojan War and laid bare within that setting the roots of an epic tradition which culminated in the Homeric *Iliad*. The disparateness of the scanty material available for this study, ranging from Hittite diplomacy through Trojan archaeology and Achaean geography to fixed epithets, does not permit a simple logical progression of ideas but is exemplified in brilliant essays establishing separate foundations which are brought together by the unity of the structure which they support.

In "Achaeans in Hittite Documents" P. reviews the evidence and various arguments for and against the identification of Ahhijawā with Achaia and for its geographical location. His own case for the identification and location in Rhodes rests chiefly on a letter from the Hittite emperor to the king of Ahhijawā, the tone and content of which seem to indicate both nearness and intervening sea. In view of the linguistic difficulties inherent in the identification, the case is not strengthened by the addition of the Rhodian *Achaia polis*. "The History of Troy" presents a masterly summary of the material facts derived from the excavations of the site. P. here makes explicit not only the long tenure of the earliest population but also the Greek connections of the newcomers who built Troy VI. Bringing together the first two chapters, "The Historical Background of the Trojan War" views the Trojans in the context of conflict between local (Assuwan) and Achaean confederacies intent on carving up the western Anatolia fringelands of a declining and retiring Hittite empire. That Troy, which may be identified with one of Assuwa's allies in the Hittite documents, should have been besieged by Achaeans seems to P. a probable and logical extension of the conflict.

In "The Homeric Description of Mycenaean Greece" the Catalogues of Greeks and Trojans are presented as heirlooms, probably composed in Boeotia two or three generations after Troy, from Mycenaean poetic tradition about the war. The arguments included later Greek ignorance of places mentioned, particularizing epithets and differences between Catalogue and *Iliad* proper, with special emphasis on the incongruities of timing and the kingdoms of Achilles, Odysseus and Agamemnon. "The Documents from Pylos and Cnossos" provides a valuable general survey of the offerings and limitations not only of the tablets themselves as evidence of the Mycenaean world but also of various interpretations which derive generalizations about the total society from very partial records of specific transactions. One specific matter, however, in which the tablets are most explicit, the Nine Towns of Pylos, P. tries to explain away as prejudicial to the Mycenaean origin of the Catalogue.

In "Some Mycenaean Relics in the Iliad" P. scrutinizes the formulaic language of the *Iliad* and *Odyssey* for evidence of Mycenaean origin both of this form of oral poetry and the Trojan War theme. Full documentation makes this an eminently useful contribution not only to the argument of this book but to the whole study of oral poetry. In the Appendix two episodes (Embassy to Achilles, The Wall) are made the objects of an attack on the unity of the *Iliad*. This argument for multiple authorship, which is more or less implicit in the rest of the book, is not on the same plane as the more historical work that precedes. Since most of us have strong convictions and/or violent prejudices about Homer, no one will agree with all

that Professor Page proposes, but the cogency and sweet reasonableness of his argument cannot provoke, except to thought.

MABEL LANG

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FROM MYCENAE TO HOMER. A Study in Early Greek Literature and Art, by *T. B. L. Webster*. Pp. xvi + 312; halftone plates 24; folding map 1. Frederick A. Praeger, Inc. 1959. $6.75.

The titles alone of the chapters contained in this volume will be sufficient to indicate its challenging character and its vast scope. The archaeologist, the historian, the student of art and especially the philologist will find in its synthesis ample material for instruction and thought. The author has tried successfully to take the reader through an area in the life of Greece that remains uncharted, but is daily becoming clearer through research and excavation. It is natural that the specialist will find himself in disagreement with the author in this or that detail, but he, as well as the student of the past, will find new stimulation and irresistible challenge in almost every chapter of the work. In this lies one of the great merits of the book.

The other is the thorough and convincing way in which are discussed the antecedents of Homeric poetry. Especially stimulating and instructive is the chapter on Homer and his immediate predecessors. The author's definition and further interpretation of Myres' comparison of the structure of Homeric poetry with the decoration of Geometric vase-painting is very enlightening; his discussion of the unity of the *Iliad* and the *Odyssey* leading to his conclusion of a continuous recital of the poems by relays of bards at festivals, is very convincing; the definition of the earlier-Mycenaean elements in epic poetry is clear and decisive; and the date for the creation of the *Iliad* and the *Odyssey*—in the eighth century—convincingly established.

Perhaps the section on the Mycenaean art and remains is the weakest part of the book. The vast horizon opened up to scholarship by Ventris' achievement and the recent discoveries in the Syrian-Palestinian area naturally foster enthusiasm and invite imaginative speculation. One wonders, however, whether our knowledge has reached the stage that will make possible somewhat definite if not final conclusions. I cannot, for example, subscribe to the author's conclusion that "Mycenaean civilization and Mycenaean art is a local variant of Eastern Mediterranean civilization and art" (pp. 64, 67, etc.). The elements on which this conclusion is based, drawn in the main from the inscriptions of the Mycenaean tablets, are common to a number of agricultural areas in an early stage of civilization the world over; the custom of giving or exchanging gifts is indeed universal. Nor can I find any evidence in the known late Helladic remains, tablets and burial customs justifying the assumed divine or near-divine status of the Mycenaean rulers. The interpretation of scenes to be found on works of art can be highly subjective and removed from reality; one may more easily believe that on the "Warrior vase" the lone woman symbolized the grief-stricken wives, mothers, etc., bidding farewell to their sons and husbands starting for the war (a scene so often repeated in our own days), than that she represents Kassandra, or Eriphyle, or a woman who is "sending the warriors to their doom or knows that it is inevitable" (p. 60).

A number of other interpretations contained in the book could be challenged successfully. For example, the divinity on the ring from the Acropolis of Mycenae has been identified as Demeter, and so was the idol from Ghazi. Yet, some time ago S. Iarinatos proved that the divinity is not the Goddess of Agriculture, is not Demeter, but the Goddess of Healing (*Ephemeris* [1937] 287-88). I would indeed like very much to find Demeter's cult in thirteenth-century Pylos, but there is no evidence to indicate, let alone to prove, its existence. The word "*da-ma-te*" (Pylos tablet, En 609) on which the assumption of its existence then and there is based, has been interpreted differently by scholars specializing in the field: Carratelli maintains that it means "family units," Ruiperez explains it as "families," and Palmer, followed by Bennett, equates it with "damartes" = homesteads. These meanings have nothing to do with Demeter and her cult. Incidentally, the inscribed false-necked amphora of Eleusis was not found "below the later sanctuary" (p. 125), but below the Lesser Propylaea; and the structure found "below the later sanctuary of Eleusis" is not the palace, which is on top of the hill, but evidently the first and oldest temple of the Goddess.

The available evidence to date is too fragmentary; some of it yields itself to varied interpretations, and in general is inadequate to prove, at least at present, the existence of a basic common culture in the eastern Mediterranean with local variations. It can only indicate influences, contacts and borrowings. The definition of these contacts opens up a broad horizon for investigation and Professor Webster's pioneer book with its scholarship, its imagination and its bold challenging character, will add a welcome and most important chapter to the study of one of the most controversial and least known periods in the life of Greece.

GEORGE E. MYLONAS

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ATLAS OF THE CLASSICAL WORLD, edited by *A. A. M. Van der Heyden* and *H. H. Scullard*. Pp. 222, maps 73, figs. 475. Thomas Nelson and Sons, Ltd., London and New York, 1959. $15.

This book comprises much more than its title implies. It consists, first, of the maps necessary for an

historical atlas and many more, all with explanatory notes; there are maps of roads, maps with locations of temples, maps to illustrate imperial administration, maps with theaters, even a map with homes of authors. Then, there are excellent and novel photographs by the hundreds; the variety of their subjects is wide, and the range is the whole Mediterranean countryside and the art of all periods; some startling air views make sites comprehensible, though they flatten the landscape, as at Bassae; all the photographs have lengthy captions. Thirdly, there is a text which is both a political, social history and a history of culture. This text is well written, stimulating and accurate, with only those faults which are inevitable because of oversimplification and condensation. Sections of text and sections of photographs alternate; there is little correlation between text and photographic order and no connection at all between the maps and the other parts; the difficulties arising from this arrangement, visually attractive though it is, are only partially met by the system of cross references and the detailed index.

The book is attractive, relatively inexpensive and a mine of information. It could become popular with acquisitively minded young people and one would gladly recommend it to them, but for the numerous errors in the caption and map sections, not excusable on grounds of re-use of old maps, cooperation of authorities or the difficulties of translation. Thessalia, Corinthus, Athenae, Thebae and Parthyaea are disturbing and the fact that the index equates them with the familiar forms used in the text is very little help. No teacher would like his class to read Caminus for Camirus (p. 47) or the Laconica used generally in captions and maps (the Laconia of the text is omitted from the index). May Apollon and Dionusos protect us! (p. 83) On p. 88 the Nike of Paeonius is dated in the fourth century B.C. and reference is to the illustration of the Nike of Samothrace. On p. 182 the theater at Delphi appears with a modern *skene*, unexplained, while on p. 187 a similar reconstruction at Epidauros is carefully explained, though quite invisible in the picture. The temple at Metapontum illustrated in fig. 77, p. 48, was not built during the fifth century B.C. (cf. map 17; even 500 B.C. is still too late). Pankration is not boxing (p. 80). The ancient citadel at Gla was not "near" Lake Copais (p. 28). Nobody calls the greatest tholos at Mycenae the "Tomb of Atreus" (p. 24). Why lengthen the list? These samples reveal how seriously errors have curtailed the value of what might have been an extremely useful book.

DOROTHY KENT HILL

THE WALTERS ART GALLERY

CHARITES. STUDIEN ZUR ALTERTUMSWISSENSCHAFT, herausgegen von *Konrad Schauenburg*. Pp. 278, pls. 36. Athenäum-Verlag, Bonn, 1957.

In this modest appearing but extremely valuable book 33 leading scholars honor Ernst Langlotz, to whom the volume is dedicated in a foreword by Erich Boehringer. The range of subjects of the papers within the Greek field and their excellence are a fitting tribute, commensurate with Langlotz's contributions over the years.

It is impossible to appraise or even describe all the excellent contributions in this volume. When reviewing a *Festschrift* one necessarily selects for mention those articles which happen to coincide with one's own needs and interests. The following remarks admittedly follow this pattern. Christian Karusos in "Ein lakonischer Apollon," 33-37, presents a little bronze masterpiece found near Sparta, strong, free and active, just emerging from the archaic stage and certainly Spartan work of about 500 B.C. With his short hair rolled over a band and crowned with a heavy bead strip, with his right hand obviously grasping a bow and with his left raised in the gesture indicating, on occasion, either prayer or protection, he is tentatively and reasonably identified as Apollo *Maleatas* to whom at least one fine statuette was dedicated.

In "Die Hydria des Telestas" German Hafner republishes a fragmentary hydria now in Mainz and collects fragments of five others, thus creating a standardized ware which he fits into the system organized by Neugebauer and Politis. The Mainz hydria, found at Libadhia in Boeotia, he takes to be Spartan work of about 600 B.C. signed by its artist, who, with his brother, made the sphyrelaton bronze statue of Zeus dedicated by the people of Cleitor at Olympia.

In Κρατὴρ Λακονικός (127-135), Andreas Rumpf attempts to prove that the great bronze krater found at Vix is Laconian and assembles considerable evidence for the importance of the Laconian bronze industry to add to Joffroy's work in *MonPiot* 1954; he demonstrates that kraters covered by sieves on the model of that from Vix were fairly common through the classical period and that they were of gold as well as bronze. Among the decorative elements which he derives from kraters are the "plate" from Dodona and the "spinning girl" formerly in Berlin. He suggests that she held a mirror; his assignment of the curious base to a sieve-cover is as convincing as it is welcome. From his list of reliefs from krater necks he omits the horseman from Dodona; but is not its similar use quite obvious?

Three such articles on one specialized subject, Spartan metalwork, may serve as a sample of the quality of the book. In the field of vase painting I took special interest in U. Hausmann's "Akropolisscherben und Eurymedonkämpfe," an ingenious interpretation of some female figures holding *aphlasta* as Athena with the sterns of foreign ships defeated in the battle of the Eurymedon. Whatever one's field of interest one can be sure to find something of value in this *Festschrift*, a most worthy tribute to a distinguished archaeologist.

DOROTHY KENT HILL

THE WALTERS ART GALLERY

THE GREEKS AND THEIR EASTERN NEIGHBOURS: Studies in the Relations between Greece and the Countries of the Near East in the Eighth and Seventh Centuries B.C., by *T. J. Dunbabin*. Edited by John Boardman, foreword by Sir John Beazley. (Society for the Promotion of Hellenic Studies, Supplementary Paper No. 8.) Pp. 91, pls. 16, map. Enschedé, Haarlem. London, 1957.

In 1952-53 T. J. Dunbabin travelled widely in the Levant, examining archaeological sites and collecting material for a work on Greece and the Orient in the eighth and seventh centuries. This work saw the light in the form of a series of six lectures delivered at Oxford in 1953-54. These lectures, in manuscript at the time of Dunbabin's death, are here published together with two appendices listing (A) Greek vases earlier than the sixth century found in the east, and (B) early Greek mythological scenes. The whole has been edited, with the addition of footnotes, by John Boardman; appended is a list of Dunbabin's published works.

The six lectures, condensed as such essays must be, at the same time represent the author's report on the results of his travels and the framework of a contemplated book to follow. No doubt an expanded version would have stressed some points and played down others. If it had been long delayed it would have had to take into consideration much new material. Of late years scholars and excavators have been preoccupied with the relations between Greece and the east in this awakening period of Greek civilization. It is no longer enough to talk of "orientalizing influences"; the influences must be tracked down to their sources, and the scenes and the times and the nature of the contacts between the Greeks and their eastern neighbors must be examined. Hence the recent excavations at Sardis and Gordion, at Xanthos and Old Smyrna. Of these Dunbabin knew only the last (which still remain unpublished) and the initial phases of Gordion; work at Sardis was not started until 1958. His book is therefore already a little out of date; more has been added, and still more is to come. But in the sequence of his essays Dunbabin has mapped out for all the problem and the method to be followed in its investigation and has documented it with the material available up to 1953.

The introductory essay, "Geometric Greece," sketches briefly (following Thucydides' "Archaeology") the early history of the "Dark Age," during which the islands were settled and the cities of the Asia Minor coast—e.g., Old Smyrna—were established. There follows an account of Greek life in the eighth century as we can reconstruct it on the evidence of excavations, particularly in Attica—a simple agricultural life under aristocratic institutions. With the increase of shipping colonies were sent out to the west; there the native peoples presumably had little to offer (unless raw materials) of interest to the Greek colonists and traders. In the east, on the other hand, Greek traders came into contact with the age-old civilizations of the Orient. Their presence there is discussed in the second essay, "The Greeks in the East." The Greek settlement at Al Mina-Posideion, the only one properly investigated so far, can be traced back to the middle of the eighth century, possibly earlier. Here at the mouth of the Orontes permanently settled Greek traders, mostly from Rhodes and the islands, were in near contact with the Neo-Hittite culture of North Syria, with Assyria and with Phoenicia. Warehouse-like buildings and quantities of Greek pottery (mostly island geometric) attest their presence and the purpose of their settlement, trade. At Tarsus and Mersin Greek pottery was found again in quantity; perhaps here too there were early settlements of Greeks. The first Appendix, A, lists all the pottery of Greek origin from the tenth through the seventh centuries found in the east, by the sites at which it was found, attesting an intercourse which increased with the passage of time. But the third essay, "Greeks and Phoenicians," brings forward again the traders of the Levant itself who plied the whole Mediterranean and who brought to Greece not only such products of the Orient as ivory but also the techniques for working them. Bronze and clay figurines from North Syria; Luristan bronzes; omphalos bowls, ivories, seals and scarabs and amulets of Phoenician style and origin; bronze vessels from Urartu—all have been found in Greece. Dunbabin suggests that Phoenician artisans settled in Greece may have been the first teachers of oriental crafts, in Greece itself teaching ivory-carving, in Crete the working of bronze and the making of repoussé shields and tympana, in Rhodes perhaps setting up a factory for the imitation of Egyptian faïence. The following two essays list and discuss the eastern contribution in the realm of things and in the realm of ideas. In addition to the ivories and metal-work first imported, then imitated and gradually adapted to Greek taste there began to appear a world of mixed oriental monsters—sirens and sphinxes, centaurs and chimaeras—perhaps reflecting imported embroideries and textiles. The differing types of the lion, the favorite beast of the seventh century, have long since been traced by Payne to two oriental sources, Hittite and Assyrian. In cults, especially those of Aphrodite and Herakles, there are vestiges of oriental practices; Melqart had a cult at the Isthmus of Corinth under the name Melikertes. Hittite stories learnt in the Levant were known to the predecessors of Hesiod; the story of Kronos, for example, was at home in North Syria before the end of the Bronze Age. Un-Greek words like chiton (from Caria), tyrannos (from Lydia), and byblos (from Phoenicia) were taken into the language—though the first, it seems, appears already in Mycenaean Greek. The most important concept of all, the alphabet or "Phoenician letters," was taken over, Dunbabin thinks, at a date between 850 and 750, possibly at Posideion or Tarsus. These sites, indeed, lay in (p. 49) "the vital area from which the Greeks learnt to use motives and elements of style derived

from the Asiatic hinterland—Assyria as well as Urartu—the crescent of the Levant coast, from Cilicia round to Phoenicia."

The last essay deals with Phrygia and Lydia. These kingdoms, fabulous in Greek legend because of their wealth, are taken to have been receivers rather than givers in the early cultural exchange with Greece. Greek pottery begins to appear in Phrygia only by the middle of the seventh century, and there seems to be no early contribution to Greece which can be identified as specifically Phrygian, despite the fact that King Midas was the first foreign potentate to make dedications at Delphi. Phrygia was landlocked; it bloomed late; overland intercourse was difficult and dangerous; and in any case Phrygia was oriented toward the east. The traditional contribution of Lydia to numismatics is not discussed. For Dunbabin the main interest of these two kingdoms to the Greeks was their wealth.

Since 1955 excavation has changed the picture somewhat. Phrygia did indeed bloom late, as it seems, and Lydia even later; otherwise we might expect to find some traces of their influence in the initial stages of the Greek settlements along the Asia Minor coast, as at Old Smyrna for example. By the middle of the eighth century, however, Phrygia was well ahead of Greece, as a comparison of early Greek with Phrygian architecture may show; and she was in a position to make her contribution. She was in touch—overland—with Urartu and with Assyria. The old Hittite military roads which once reached the Aegean coast, as is evidenced by the monuments at Karabel and Sipylos, must have been again in use; they eventually became, in fact, the Royal Road of Darius the Great. It must have been possible, indeed, despite periods of interruption, to go overland from Susa to Sardis and the Aegean coast from the Bronze Age onward. Such a route would of course be impractical for heavy commerce. Different regions had different outlets to the coast where sea transport took over: North Syria, Cilicia, Assyria, as Dunbabin points out, at Al Mina and ports along the Cilician and Phoenician coast. Urartian products, it has been argued lately, must have had an outlet at a Black Sea port, especially after the Assyrian conquest of the Syrian coast, and if we accept the Eusebian date for the foundation of Trapezus, that would have been a suitable outlet. Certainly it is no farther overland from Lake Van to the Black Sea than it is to Al Mina. Even if goods were floated down the Euphrates they had eventually to be carried overland across the desert to the Syrian coast. The natural westward outlet for Phrygia was directly to the Aegean coast. Gordion undoubtedly owed its importance—and the settlement goes back to the Early Bronze Age—to its position at a river crossing on a main route from the plateau to the coast, a route followed in the fourth century by Alexander in his campaign against the Persian King, as it is followed by the railroad today. The great bronze cauldrons with siren and bull-head attachments found at Gordion may well have been local products, but if they were importations from Urartu or elsewhere they must have been transported overland to Gordion. We know almost nothing of the organization or extent of the eighth century Phrygian Kingdom, or of its relations with its neighbors in the west. Phrygian bronzes found at Magnesia at least indicate that the route to the west was open. The earliest Greek bronze-factory seems to have been at Samos, just off the Asia Minor coast. Here were produced cauldrons with griffin and lion protomes, and here must have been produced also Greek siren and bull-head attachments modeled on the earlier products of the hinterland, perhaps under the tutelage of experienced Phrygian or Urartian artisans. Bronzes like these differ completely in type and style from the Cretan shields; the Greeks, once contact with the east became assured, were learning from more than one source. No doubt the Greeks like the Phoenicians traded by sea. But the peoples of the interior did not remain isolated. They sought overland outlets to the seacoast; an important part of the policy of the Assyrian kings was to gain and to keep access to the sea. In the late eighth century we find Midas of Phrygia abetting the King of Carchemish in a revolt against the Assyrians. Such long-distance plotting bespeaks written communications of some sort—probably in cuneiform on clay tablets. But Cilicia was fully as accessible to Phrygia as was Carchemish; and if Dunbabin is correct (as he probably is) in inferring the taking over of the "Phoenician letters" by Greeks settled at Posideion or Tarsus, then we have an accessible common source for the diffusion of an improved alphabet not only by sea to the islands and to Greece, but also overland to the peoples of Asia Minor. A common source is necessary: the radical change made by the creation of vowels from superfluous Semitic letters must have been made, as has been pointed out, at one time and in one place, perhaps the invention of one man. In the multiplicity of local alphabets in Greece (and in Asia Minor) it is not the vowels which vary; they are fixed, and the variations occur among the consonantal forms. Alphabetical inscriptions have been found at Gordion which are fully as early as any Greek examples we possess. If we must derive the Phrygian alphabet from the Greeks through a local Aeolic model of which no example has survived then we must move back the taking over of the Phoenician alphabet by the Greeks to a time far anterior to the period of general contact with the east which was so fruitful in other fields during the eighth century. We must allow time for the development of an Aeolic alphabet; for its transmission up the Hermos valley to the Lydians and its development by them into a form peculiar to themselves; and finally for further transmission to Phrygia and the development there of forms differing again from the Lydian. But he who travels overland carrying only an alphabet travels light and travels fast.

Let us then leave overland communications to the peoples of the Near East who were experienced at them and compelled to them. The best sea-route from Greece to the east was through the islands to Samos—one was never out of sight of land—and from there

northward or southward along the coasts. Hence the early importance of Samos. With its important sanctuary of Hera containing the earliest large temple known to us—and that was primitive enough—it was a natural place for the dedication of terracottas brought from Cyprus. There, as Dunbabin points out, the mold was first introduced in the second quarter of the seventh century. But Samos must have been a focal-point for many innovations. Thither, and to Chios—also just off the Asiatic coast—were imported the Phrygian or Urartian bronzes; these islands became points of diffusion for such artifacts to all of Greece. These bronzes included such small and utilitarian implements as the Phrygian fibulae, and it is interesting to note that the finding-places of these in Greece coincide with the finding-places of the larger bronzes, the griffin protomes of Jantzen's first or "getriebene" style. As the excavations go forward it becomes evident that Phrygia had her contribution to make to Greece, and time will probably show that Lydia too had hers.

But we must look still farther afield. Somewhere, probably in Egypt, the Greeks learned the techniques of quarrying and handling and cutting large blocks of stone, without which monumental architecture and sculpture could not have been attempted. The mercenaries of Psammetichos the First, garrisoned at Defenneh already before the middle of the seventh century, must have wondered at the huge monuments of Egypt, and perhaps it should not be surprising that among the first creations of monumental Greek sculpture the kouroi are so Egyptian in type and style. In Egypt or the Levant, too, the Greeks must have learned the processes of hollow-casting to make the bronze counterparts of these, first on a small scale for cauldron protomes and the like, later for sculpture on a larger scale. It would be interesting to know whether the statues of hammered bronze plates, the *sphyrelata* from Dreros in Crete, were a Greek innovation or whether they too were made under the tutelage of the Phoenician artisans who were, according to the author, teaching the Cretans how to make bronze shields with repoussé decoration at about the same time. This and many other fascinating questions would no doubt have been considered by Dunbabin had he lived to write a full-length book. The six lectures, here published as a memorial to their author, are a more than adequate guide to the nature of the problem of Greece's relations with her eastern neighbors in the eighth and seventh centuries, and to the methods, historical and archaeological, by which it must be approached.

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SAMOTHRACE (Excavations conducted by The Institute of Fine Arts of New York University) edited by *Karl Lehmann*. Vol. I, THE ANCIENT LITERARY SOURCES, edited and translated by *N. Lewis*. (The Bollingen Series LX, 1.) Pp. xv + 148. Pantheon Books, New York, 1959. $7.50.

"This volume," says Prof. Lewis in his preface (p. xi), "presents the results of a systematic search of Greek and Latin literature for texts relating to the island and its cult down to the sixth century A.D. . . . I have no doubt that . . . pertinent texts exist that have escaped my notice, but I dare to hope that nothing of real importance has been overlooked."

As far as texts which specifically mention Samothrace are concerned, this hope would seem to be justified. The only omissions I have noticed are trivial: Quintus Smyrnaeus 13.467; *Liber Generationis* in *Chronica Minora*, ed. Frick, I 30 fol. and *Excerpta . . . Barbari*, id. 214 fol. The rarity of references to the island by the Fathers of the Church and its absence from the indices of the *Acta Conciliorum* and from the early martyrologies suggests that the population was not enthusiastically Christian and that the local cult had lost its international importance. Gregory Nazianzen (*Carm.* 2.2.7, *Ad Nemesium* 260-265—a passage Lewis has not included) still ranks it next after Ephesus among the mysteries, but this may reflect earlier literary tradition.

This passage from Gregory is one of those relevant to the cult, but without specific mention of the island. Here the omissions are more serious, but there was more excuse. It would have been impossible and irrelevant to include all passages about Corybants and Dioscuri. Nevertheless, one regrets the absence of material like Firmicus Maternus, *De Errore* 11 and especially *Orphica, Hymni* 39 with its appeal to a Corybant for protection against nocturnal terrors, a matter far closer to the practical piety of late antiquity than the literary exercises from Nonnos which have been included. Beside the complete omissions, some of the texts included have been so docked that relevant material does not appear, for example, no. 217, where three dots replace the important verses identifying the Curetes as gods of storms (*Orphica, Hymni* 38.15-19).

Finally, many of the translations are free to the point of inaccuracy. To mention only instances where the error is of some importance:

No. 84, read, "for example . . . connecting 'Samos' with 'Thracian' (and elsewhere writing) 'between Samos and Imbros.'" Cf. nos. 42, 85 fol. and 93. Here Lewis was misled by the Loeb mistranslation.

142 note b, read, "possessed by Demeter and Kore."

μυστικός, *passim*, should more often be rendered by "secret" than by "mystical."

196, "This otherwise unattested capture of Samothrace" is attested by taking πρότερον with διαπλεύσασα rather than with ἡλώκει, and making διαπλεύσασα imply that the transit was completed; neither certain. Lewis' "there" is an act of faith. Incidentally, the reference here should be, *de Alexandri fortuna*.

215 end, read, "according to (the names of) those

places." Cf. RE XI 2 (1922) 2250. Here the Loeb translation was correct.

229h lines 10 fol., read, "they say Agamemnon, (because) he had been initiated and had the purple garment (Homer spoke of) . . ."

The book has been beautifully designed and printed. As a piece of craftsmanship it maintains the high standards of the Bollingen series. The proof reading, too, was careful; I noticed few misprints and only one of importance, in no. 12, for "pp. 211-12" read, pp. 35-6, nos. 211-12."

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CORPUS VASORUM ANTIQUORUM. Deutschland, Band 14, Leipzig, Archaeologisches Institut der Karl-Marx-Universität, Band 1, by *Werner Müller*. Pp. 59, pls. 53. Akademie-Verlag, Berlin, 1959. DM 45.

This first Leipzig fascicule will particularly interest Corinthianists; 29 of 52 plates are given to Corinthian vases and imitations thereof, the majority of the rest to Cypriote, Attic Geometric, and East Greek. Müller's treatment of individual pieces in the text is commendable; the descriptions are adequate and straightforward. He has taken care to distinguish Italo-Corinthian and Corinthian—although the long alabastron T 38 seems properly Corinthian. Comparanda suggested for the Corinthian vases are, in most cases, to the point. However, for vases mentioned in J. L. Benson, *Die Geschichte der korinthischen Vasen*, citation of *GKV* list and number would have been useful. In the plates, photography and printing are generally good, although not so excellent as in some other recent German fascicules. There are sufficient views and details of the most important pieces. One serious criticism: in several plates, white is added on the photograph to make the glaze-paint stand out strongly; on pl. 20, 3-4, the profile of lip and neck is "strengthened," apparently by drawing on the negative. Certain other odd effects seem to be due, rather, to modern repainting on the vases.

A few particulars. The attribution to Payne's Lion Group (NC 538ff) of T 2292 is incorrect: Müller must intend the alabastra NC 258-266A. The full publication of the Warrior Group aryballos T 2171 (NC 496A) is most welcome. Attributions in this area (NC 495ff) are difficult, but NC 496, 496A and 496B form a natural cluster although they vary significantly in style. The comparison of the alabastron T 322 with *NSc* 50 (1925) 200, fig. 34 must not be taken as an attribution to Benson's *Panthergruppe* (*GKV* List 78, 5). The characteristically poorly-made alabastron T 4829 is by the Erlenmeyer Painter (Benson, *GKV* List 64). It is a near replica of List 64, 2; the lion closely resembles one at Yale (*AJA* 60 [1956] pl. 72, figs. 22-23). The alabastron T 947 is the work of a painter to whom D. A. Amyx has been able to assign 16 other vases, all flat-bottomed aryballoi; two of these are NC 1279 and 1264, two others are in a private collection in Torino—hence, the Torino Painter. T 317 (NC 604) is from the same hand as NC 607 (Dugas, *Délos* X, pl. 26, 322). The krater T 3296 is certainly Corinthian; so also NC 1462 which he cites. For T 3296, reference to Benson's lists is especially needed, since the comparanda Müller suggests are there assigned to various lists (*GKV* Lists 80, 3; 81, 2; 100, 6; 101, 1). The Chalcidian-shape krater T 4849 is perhaps the finest vase in the fascicule, and the new reading of the difficult inscription seems convincing, but the style of T 4849 does not bear out the suggestion that it is from the same workshop as NC 1477-78, 1480-82 (Andromeda Group and Tydeus Painter). Only two serious misprints: p. 44, the Dodwell pyxis is NC 861; p. 46, after "Spätkorinthisch I," read NC 1342ff.

The only Attic black-figured vase in the fascicule, a kylix (T 314), is labelled "Attisch-korinthisierend" in the plates and treated as if of Corinthian manufacture in the text. The term, "Attico-Corinthian," implying somehow half-and-half origin, is both meaningless and pernicious, and Müller failed to avoid the worst of its inherent dangers. In fact, the style of Leipzig T 314 shows no trace of Corinthian influence. The shape is that of Attic kylixes of the second quarter of the sixth century rather than Middle Corinthian Gorgoneion cups (NC 986-998), and, what is most interesting, the decorative syntax is already essentially that of mid-century Lip-Cups. Compare also *Hesperia* 25 (1956) 59, pl. 18 e (and others, unpublished, in the Athens Agora Museum).

These observations, however, are not intended to disparage the fascicule, which is the more welcome because previously only a very small proportion of the early non-Attic vases in Leipzig were properly published. A number of Leipzig pieces listed by Payne (NC 165, 736, 778, 1192, 1426, 1454, 1460, 1469) are missing; unfortunately, these may be among those destroyed during the last war (see text pp. 5-6). The collection is especially useful to the student since it was formed, not for an art museum of fine, exceptional pieces only, but as a university study collection. One hopes that further fascicules for the later periods will soon be forthcoming.

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CORPUS VASORUM ANTIQUORUM. Grèce, fascicule 2, Athènes, Musée National, fascicule 2, by *Semni Karouzou*. Pp. 30, figs. in the text 5, pls. 48. Paris, 1954.

This is the latest fascicule of the Greek series of the *CVA*. The numbering of pages in the text is not continuous as in the fascicules of some other collec-

tions (for example those of Oxford) but according to categories. The numbering of plates also is according to categories, unlike that of the plates in the German and Danish fascicules. The illustrations are "recto-verso." Most vases are Attic red-figure, filling twenty-four plates. Eighteen plates are devoted to geometric, proto-Attic and white-ground; they are equally divided among the three categories. There are four plates of Attic black-figure and only two plates of Corinthian. With the exception of one alabastron all white-ground vases are lekythoi.

The illustrations are mostly from photographs, but also from a number of drawings contributed by Messrs. A. Contopoulos and A. Papaheliopoulos. These are very helpful for the study of subject matter and composition when the vases are in poor state of preservation. A good example of this combined method in illustrating a vase is the proto-Attic "pithos" 17762 (III He, pls. 1-2). Less satisfactory is the publication of the Kynosarges amphora (III He, pls. 3-4 and text p. 4, fig. 4) which, as is well known, is very fragmentary. The author must be given credit for illustrating the whole vase restored for the first time. However, the figure showing the entire obverse is so small that the student who has not looked at the vase carefully as it is now exhibited in the National Museum or at the old drawings published in *JHS* (1902) pls. 2-4 would have some difficulty in deducing the places of its most important fragments, which are illustrated in separate figures. The reverse is also unsatisfactorily published in a single figure from a comprehensive drawing. The publication of vases or parts of them exclusively from drawings is at best inadequate and at worst misleading, and should be avoided on principle. Of this practice which, as far as I can remember, is not discussed in the *Colloque International sur le Corpus Vasorum Antiquorum* (Lyon, 3-5 Juillet 1956), there are several examples in this fascicule. The most noticeable is that of the foot of a geometric stand 17384 (III Hd, pl. 14, 2 and text p. 11, figs. 2-3). A comparison of its illustration with that from two photographs which I publish elsewhere in this number of *AJA*, by kind permission of Mme. Karouzou herself, shows that the number of preserved zig-zags of the line decorating the zone above the foot is greater than that given in the drawing published in the *CVA*, in which a projection at the left end of the top is also omitted in spite of its importance for the shape of the stand (see also infra).

In view of the importance of the pottery collection of the National Museum in Athens and of the attempts made in recent years on an international level to systematize and coordinate the publication of vases in the *CVA*, the choice of the material appearing in this fascicule would seem a little casual. A stricter selection according to categories and shapes would have seemed more desirable, following the examples of the Museum Antiker Kleinkunst in Munich and the Metropolitan Museum in New York. As the author explains in the preface, her choice was partly dictated by adverse conditions in the National Museum during the preparation of the fascicule, when, as a result of the war, the greatest part of the vase-collection was still packed and not available.

About the length of the text devoted to each vase there is naturally no general agreement among the authors of the *CVA*. I share the view of those who think that it should be relatively short and complementary to the illustrations. As regards the content, however, it should be kept in mind that Greek vases are of interest to a group of educated people larger than that of the specialists, and since the quality of plates in the *CVA* is steadily improving it is hoped that a larger number of readers will take an interest in it. For the sake of this larger group small prefaces to the text of the different categories like those in the Reading fascicule or the second fascicule of the Metropolitan Museum of Art are highly desirable. The non-specialist who reads Mme. Karouzou's text on the different categories of vases is nowhere given systematically the most important bibliography on each separate subject.

The question of dates is more delicate. Since Greek vases can often be dated very closely, it seems to me that the average reader of the *CVA* can only profit by chronologies provided he is warned about their relative or tentative character. From this point of view the present fascicule is less up-to-date than the Reading fascicule or fascicules 17 and 18 of the Louvre.

Apart from these general observations Mme. Karouzou's text is carefully written and calls for little comment. One might perhaps point out an occasional loose use of shape-names. I would call the proto-Attic vase 17762 (III He, pls. 1-2) a krater rather than a pithos, since its shape seems to be connected with the ovoid kraters Cambridge 7/25, *CVA* 1, III GH, pl. 2, 7 and Berlin A32, *CVA* 1, pl. 18, obviously developed from the big geometric kraters with stands (see also Beazley, *Development* 5). Similarly I would not agree with the author in calling the Kynosarges vase an "amphora-pithos" since the term "pithos" is generally applied to large storage vases. The Kynosarges vase is a neck-amphora similar in shape to the Eleusis and Nessos amphorae. These vases were made to be used as grave monuments rather than for practical purposes and should be looked at in connection with the large grave vases of the geometric period. The author does not consistently identify the types of cups. Cf. for example her text on the cup 17869 (III Id, pl. 13,1 and pl. 15,5) with that on the cup 17902 (III Id, pl. 13, 2-4 and pl. 15,4).

Cup 17921 (III Id, pl. 14, 2-4 and pl. 15, 2): the cross-shaped objects in the background of A and B, which according to the author have not been identified, have, I think, been convincingly recognized as hanging detached heads of torches (see *University of California CVA* 1, text p. 41).

Lekythos 1632 (III Id, pl. 17, 1 and 3): connected with Hermonax (my attribution confirmed by Sir John Beazley).

Pyxis 1241 (III Id, pl. 18, figs. 1, 5 and 6; pl. 19, 2-4 and pl. 20, 1): the Muse immediately to the right

of Apollo holds not a flute but a double flute.

Loutrophoros frr. 17336 (III Id, pl. 24, 1-2 and pl. 26,2): by the Kleophon painter (my attribution confirmed by Sir John Beazley).

Pelike 16346 (III Id, pl. 27, 1-3): the attribution of A to the Klügmann painter does not seem to me convincing.

White lekythos 17287 (III Jc, pl. 20, 2-3): the comparison of the style of drawing with that of the lekythos Berlin 2427 (Jacobsthal, *Mel. Reliefs* 81, fig. 14; Beazley *ARV* 763, 2 above) does not seem relevant.

The following white lekythoi are, I think, misattributed: 17277 (III Jc and d, pl. 21, 1-2 and 4) to the Inscription painter; 17335 (III Jc and d, pl. 21, 3 and pl. 22,1) to the Woman painter and 17326 (III Jd, pl. 22, 2-3) to the Quadrate painter.

Foot of geometric stand 17384 (III Hd, pl. 4, 2 and text p. 11, figs. 2-3): to the same stand belongs the fragment Toronto inv. no. 957x245. For these two fragments and for a reconstruction of the shape of the stand, different from that suggested by the author in her text-figure 3, see my note elsewhere in this number of *AJA*.

In spite of the reservations expressed above Mme. Karouzou's work is of high quality, and should be all the more appreciated because it is offered in addition to the important contributions she has made and is still making toward the reorganization of the National Museum and the up-to-date display of its masterpieces. It is hoped that she will soon publish a third *CVA* fascicule.

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ATTISCHE PLASTIK VOM TODE DES PHIDIAS BIS ZUM WIRKEN DER GROSSEN MEISTER DES IV. JAHRHUNDERTS V. CHR., by *Tobias Dohrn*. Pp. x + 248, pls. 30. Scherpe-Verlag, Krefeld, 1957.

The rather involved title of this monograph refers to the period of seventy years from 430 to 360 B.C. or, more roughly, from the outbreak of the Peloponnesian War to the accession of Philip of Macedon. This was a phase in the history of Athens peculiarly unfavorable to the production of sculpture, with an obstinately protracted and ultimately exhausting conflict succeeded by great economic distress and a slow recovery of prosperity. It marks for Attic art a largely empty interval between the prodigious activity of the Parthenon School and the re-emergence of important artists such as Praxiteles, Leochares, and Skopas. Except for the brief respite between the unenduring Peace of Nikias in 421 and the resumption of general hostilities in 414, Attic sculpture was enforcedly in abeyance, with leadership in the art passing to the Peloponnesian bronze-casting workshops of Polykleitos and his numerous pupils and successors. Strictly considered, therefore—again with exception made for the seven productive years between 421 and 414—there was no *Attische Plastik* "from the death of Pheidias to the activity of the great masters of the fourth century." In consequence, the study which Dohrn envisages is unavoidably restricted to the minor art of relief, with little more ambitious material than carved treaty-heads and gravestones on which to base a study of sculptural style. Nonetheless, despite the discouraging dearth of documents an important work has resulted.

It is, however, a work which must be read with strict attention if it is to benefit the reader; and it must be supplemented with an apparatus of illustrations, notably Diepolder's and Johansen's monographs on the Attic grave-reliefs and the monumental corpus of Conze, if the detailed stylistic observations are to be intelligible. The thirty plates which Dohrn supplies are in general very good, albeit rather small; but it was obviously impractical to attempt adequate illustration of all the items under discussion.

Since sowing a barren field can yield only a meager crop it is only natural to make the most of a scant harvest. Dohrn has perhaps been tempted into deriving more than his material admits in reconstituting a complete chronology of the late fifth and early fourth century reliefs; but the project has been accomplished with great acuity of observation and inference and from thorough familiarity with the evidence. The present reviewer finds particular interest in Dohrn's contention (fundamental to his entire chronological ordering) that the practice of setting carved grave-reliefs for the dead, suspended toward the end of the sixth century in Attica for reasons that can only be surmised, was not resumed until the closing decade of the fifth century. This sets the event a full generation later than is usually supposed and involves the claim (and with it some sort of proof) that the Attic reliefs generally assigned to the time of the Parthenon were actually carved at least twenty years later. Direct inspiration from the Parthenon frieze and other work of the period is too apparent to be denied; but contemporary execution is rejected. Instead, a "Pheidian classic" revival is posited for the early fourth century; and to this the so-called "Parthenon group" of reliefs is transferred. Such a distinction between a classic and an immediately succeeding classicizing style is a very delicate one to draw and a difficult one to impose. Its brief consideration may serve as an illustration of Dohrn's critical methods and a critique of their presumptive value.

The great Eleusinian relief of Demeter, Persephone, and Triptolemos is examined very thoroughly in order to dissociate it from its late-Periclean connections and reassign it to the closing decade of the century, however unpropitious for so ambitious and serene a production this time of struggle and defeat might seem to be. As a contemporary parallel for the unique scale of the relief, which measures eight feet in height, Dohrn adduces Pausanias' mention of a colossal relief by Alkamenes, dedicated at Thebes by Athenian

Thrasybulos in commemoration of the events of 404-03 B.C. But unless some different reading has been adopted, Pausanias makes no such reference: in 9.11.6 the words κολοσσοὺς ἐπὶ λίθου τύπου τοῦ Πεντελῆσιν can only be translated "over-lifesize statues in marble of Pentelic sort." Apart from the likelihood that such an adornment of the Eleusinian sanctuary was part of the Periclean project for beautifying Athens, coupled with the improbability that a first-rate work should have been produced later during a period conspicuous for second-rate mediocrity, there is only the sculptural style of the relief itself to determine its chronology. And to this the comments of Dohrn are directed. He readily admits that the Triptolemos of the relief is closely reminiscent of the youth accompanied by his dog on a stele from Thespiae that should be ascribed to the period 445-430—"fast könnte man sagen, sein Ebenbild" and "Vorlage." Yet the inference that the Eleusis relief belongs to this same period is rejected on the ground that the Eleusis heads are proportionately larger, the limbs are longer, and the drapery is "duftiger." Hence the work is of later manufacture and its Periclean characteristics are deceptive, being due to an "archaistic-hieratic" trend. Since large heads are typical of the mid fifth century and it would be difficult to point to any specific detail of drapery or anatomy on the relief that cannot be paralleled from the Parthenon frieze, all this is very subtle discrimination.

The famous and even more lovely relief of Hegeso is subjected to equally close scrutiny, very competently performed, to displace it from its apparent position only slightly later than the Nike Parapet and reassign it to the second decade of the fourth century—a shift of fully thirty years. Again the same subtlety determines the issue: the seeming fifth century characteristics are the imitative touches of a later master who "has not disdained to see with the eyes of an older generation and . . . turned back his gaze to the works of his predecessors in order to give his chief figure an especial note of patriotic greatness ('etwas Hoheitsvolles und zugleich Altväterliches')."

The stele of the Two Brothers, found on Salamis and now in the Peiraeus museum, recalls the hydrophoroi of the north frieze of the Parthenon in its studied variation of two identical figures and echoes the cavalcade of the same frieze in its oblique overlapping of consecutive figures with the leader distinguished by his nudity; in its poses it closely echoes the "Polykleitan" themes at the northwest end of the frieze; it treats relief-projection and designs drapery in the manner of the frieze; and like the frieze it sets its figures on a sloping ground shelf. Furthermore the stele is crowned with a narrow headband in fifth century manner without finial or gable or pilasters, and the inscription shows fifth century letter-forms. Yet all these indications of a date close to the beginning of the Peloponnesian War are dismissed as classicistic reminiscences, and the work is assigned to an advanced decade of the fourth century on criteria of spatial "Auflockerung" and a foretaste of Lysippan proportions. The typically fifth century shape of the heads and the undifferentiated muscles, taking no account of tension and relaxation between weight-leg and free-leg, are passed over.

On two gravestones (Athens 716 and British Museum 628) assigned by Dohrn to the second decade of the fourth century the resemblance of the heads of the middle-aged men to the Poseidon of the east frieze of the Parthenon is shown by photographic juxtaposition, and dependance is accepted as proven; but synchronism is rejected. Yet is it valid to assume that the head of a less than lifesize figure set high up in the pronaos entablature of the Parthenon was so clearly discernible and so impressive that a later sculptor could have copied its features or would have been impelled to turn to it for inspiration? Should we not rather conclude that the similarity was due to a living and contemporary stylistic tradition of the workshops?

Dohrn consistently excludes drapery styles as chronological indices, having apparently an inherent disrespect for what he condemns as "Faltenarchäologie." Yet the idioms of classical drapery were never so closely pondered or so diligently applied as in the second half of the fifth century, wherein each decade was crowded with its own characteristic experimentation and hard-won formulas of accomplishment. On this score it would be difficult to believe that the ribbon technique of flat crumpled folds without effect for modeling the body, which appears on the Shoemaker Relief of Xanthippos in the British Museum, could have persisted or would have been revived once the correct device of the modeling-line had been evolved, as on the Nike Parapet. Since Dohrn correctly dates the parapet to the late 420's in close connection with the completion of the little temple which it protected, it seems highly improbable that the Shoemaker Relief could have been carved forty years later or that it is, as Dohrn maintains, contemporary with the Boston stele of the young woman regarding her mirror, where the drapery conforms to the fully evolved idiom of modeling. There are several similar discrepancies in the chronology tabulated by Dohrn. To refuse to consider them and to trust instead to such subjective criteria as "Sehweise" and "Rhythmus" and "dynamische Form" is to close one's eyes to critical opportunity. If Dohrn should prove to have been mistaken in his retarded timetable for the Attic reliefs, it will be the despised "Faltenarchäologie" that will have been his undoing.

The instinctive desire to fill a chronological gap—a form of *horror vacui*—may be chiefly responsible for Dohrn's transference of so much late fifth century material to the early decades of the fourth. Such a redistribution may conform to a need for introducing system and order, but it ignores the accident of historical event. The economic and moral collapse of the terrible close of the thirty years' war with Sparta drained Athens of its artists by refusing them employment and forcing them to emigrate. As Dohrn observes, "tradition furnishes us with no sculptors' names" for the early fourth century; "any incentive was lacking for major artistic activity, and the demos

had no means available for such undertakings." In consequence, none but minor, and for the most part second-rate, work was produced between 410 and 370 —the mere routine of utilitarian output of headings for decrees, memorials for the war-dead, gravestones of citizens. Lacking incentive to originality, the artisans may well have consulted earlier productions and borrowed docilely from them; but they were not capable of the previous artistic level of attainment. Only a sculptor who had himself worked at the Parthenon frieze could have carved the stele of the Two Brothers; and only one directly conversant with the living tradition of the masters of the Nike Parapet could have carved the gravestone of Hegeso.

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DIE VORBILDER DER NEUATTISCHEN RELIEFS, by *Werner Fuchs*. (Jahrbuch des Deutschen Archaeologischen Instituts, Ergänzungsheft 20.) Pp. 212, figs. 2 in the text, figs. 111 on 39 plates. Walter de Gruyter & Co., Berlin, 1959. DM 34.

The book is dedicated to Bernhard Schweitzer, the eminent teacher of the author. It was originally accepted by the University of Tübingen in 1952/53 as a dissertation for the Ph.D. degree. It is the first comprehensive study of the Neo-Attic reliefs after Hauser (*Die neuattischen Reliefs*, 1889) who gave a complete survey of these reliefs for his time. In the meantime so many new finds, discussions and single papers have appeared that Fuchs had to give up the plan to make a new corpus. He is mostly interested in the originals used by the Neo-Attic artists and with the question, which of the Neo-Attic reliefs can be used for the history of the classical art of Athens. He also deals with the historical situation of the late Hellenistic and the following Roman periods down to the Antonines.

Fuchs dedicates the first part of his book to the investigation of single monuments or groups of monuments and their Neo-Attic copies. He begins with the Nike temple parapet, so well illustrated by Rhys Carpenter (*The Sculpture of the Nike Temple Parapet*, 1929) and ends with Pan and three archaistic women by Kallimachos, which Eduard Schmidt (*Archaistische Kunst in Griechenland und Rom*, 1922, p. 62f) considered to be a fake while Fuchs considers it as an eclectic early Neo-Attic transformation of an original of the fourth century B.C.

In the second part (pp. 129-83) Fuchs discusses at length and in historical sequence the models used by the Neo-Attic artists taken from the classical periods of the fifth and fourth century and the Hellenistic periods of the third and the second century; the stylistic situation in the late Hellenistic and the beginning of the Neo-Attic art from the middle of the second century to the period of Sulla, 86 B.C.; the late republican Neo-Attic in Athens and Rome (from 86 to Augustus, 27 B.C.) and the imperial Neo-Attic art.

Two Appendices deal with the dating of the finds on the ship sunk near Mahdia (pp. 183-86) and the style of the copies from the reliefs on the shield of Athena Parthenos found in the Piraeus harbor (pp. 186-92). A short survey on the character and significance of the Neo-Attic phenomenon concludes the book (pp. 193-97). A good index and a useful concordance with Hauser are added.

The illustrations are well chosen and well rendered. For some well known ones there are new good photographs taken by the photographers of the German Archaeological Institutes in Rome and Athens. Other pictures are of less well known or unknown reliefs, for example the lovely Aphrodite and Eros in Palazzo Braschi, pl. 14a; the Maenads in Turin, pl. 17b; and the crater with Paris and Helen in the Warburg Institute, London, pl. 33b. It is unfortunate that the upper part of the archaistic Hermes, found in the Agora of Athens, the first publication of which has been generously granted by the American excavators to Mr. Fuchs, has been reproduced upside down in fig. 10a.

The author has in mind three main problems which he tries to solve through his extensive discussions of definite groups of monuments: 1. The concept of Neo-Attic. 2. Site and art-historical position of the Neo-Attic workshops. 3. Questions connected with place, manner and periods of the models used by the Neo-Attic artists. The answers, spread through the book and summarized in the last chapter, are in essence: 1. The Neo-Attic reliefs use models of earlier periods for decorative reliefs or in copies according to the taste of the different late republican and imperial periods. The balance of form and content (Fuchs says "Gestalt und Welt") of the classical and Hellenistic periods is lost. The reality of a creative model is replaced by subjective taste which uses various stylistic forms side by side. The spirit has fled and as a consequence the quality of the Neo-Attic reliefs declines to eclectic formalism. 2. Athens is the place of origin, but after the Sullan catastrophe in 88-86 B.C. many artists left their home town for Rome, where their main clientèle lived. The rich Romans needed decorative artistic works for their houses, villas and gardens. Neo-Attic art grew out of the classicism of the late Hellenistic period. It mingled Hellenistic and classical elements into a new eclectic style until in the Augustan period the two antithetic elements are blended to a new artificial unit. 3. The models are mostly taken from monuments in Athens. The Neo-Attic artists prefer the manneristic periods, when a definite style becomes artificial through repetition before a new style develops. That means that the late fifth, the late fourth and the late Hellenistic sculptures are preferred. These models are not only reliefs but also statues in the round and occasionally paintings.

Some of Fuchs' results may raise doubts: The exclusion of other sites besides Athens, particularly in the imperial periods (see Gisela Richter, *Three Critical*

Periods in Greek Sculpture 52f); the exact dating of many replicas of the same work in the most diverse periods; the belief that all important copies and transformations were made in the early Neo-Attic period before Sulla; the imitation of painting in relief instead of parallel development of motifs in painting and relief, and other minor points. The book is, however, a mine of information on this important group, which the author rightly calls an important mediator in the recognition of Greek art as the foundation of European art. Professor Schweitzer can be proud of this pupil.

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SCULTURE GRECHE E ROMANE DI CIRENE, by *L. Polacco, L. Beschi, F. Bertocchi, G. Traversari, E. De Franchi, M. T. Fortuna.* Pp. 337, figs. 102. CEDAM, Casa Editrice Dott. A. Milani, Padova, 1959. Lit. 7000.

During 1924-1930 Italian archaeologists worked at Cyrene, digging, organizing and studying excavation finds. Prof. Carlo Anti was in charge of the publication of sculptural monuments, but was delayed in the performance of this task by various assignments and later by the Second World War and its consequences. Prof. Anti had however gathered a vast amount of information on the statuary of Cyrene and, during his years of teaching at the University of Padua, he put this valuable material and his own personal knowledge at the disposal of his students. Their work on individual monuments resulted in eleven monographs, now presented in book form as *Sculture greche e romane di Cirene*. While the volume was being printed, Enrico Paribeni published his *Catalogo delle Sculture di Cirene*, where all but one of the subjects treated in our book are discussed. However, in spite of a certain parallelism of conclusions in a few cases, the monographs are not a superfluous counterpart to the Catalogue, and some of the theories expressed are original and go well beyond the scope of Paribeni's work. The validity of the conclusions reached may vary in the opinion of the individual reader, but no one can fail to appreciate the studious care with which each author treated his subject, and the wealth of information and comparisons given for each monument. Above all, the book should be praised for its elegant typographical form and excellent photographs, the latter more numerous and so much clearer than those of Paribeni's *Catalogo* that they alone would justify the publication of the book.

The first piece discussed is an archaic male head (Paribeni no. 13) of ca. 500 B.C. L. Polacco advances the interesting theory that the youth is wearing a special kind of mail helmet. Its treatment is almost identical with the hair rendering of many archaic statues, but the presence of a border all around seems to support the author's contention. Less convincing is the attribution of the piece to a Laconian school, and among the many comparisons suggested, that with the Ptoan no. 20 in Athens should be stressed. (Reference to Richter's *Kouroi* would also have been in order.)

On the other hand, no cogent comparison has been found, I feel, for the beautiful female head of the severe period (Paribeni no. 15), in spite of the great amount of material reviewed. The similarity of the head to Aeginetan works on the one hand and Magna Grecia monuments on the other is too tenuous to support the theory of an Aeginetan *koine*, as suggested by Polacco. L. Beschi competently discusses two funerary reliefs (Paribeni no. 45) with the myth of Alkestis, proposes to restore them on either side of a tomb door (as often seen in Lycian monuments), and suggests a date at the end of the fifth century B.C. based on comparisons with Attic works from which the Cyrenaic reliefs derive their inspiration. The same author deals with the Hoplite relief (Paribeni no. 51) which so strongly recalls one of the figures on the Salamis stele in Peiraeus. Many other sculptures, stylistically and iconographically connected with the piece, are considered (although some bear only a remote resemblance to it), and the provenience, purpose and arrangement of the dedication are discussed.

F. Bertocchi presents a statuette of a male divinity on a throne (Paribeni no. 192): it is typologically very close to one of the Asklepios reliefs from Epidauros in Athens, but is identified as Zeus and dated in the Hellenistic period after an original in the first half of the fourth century B.C. G. Traversari has studied two late Hellenistic statuettes of Apollo citharode (Paribeni nos. 150 and 484) which differ slightly from the common versions of the type, and may vaguely recall the fourth century cult statue in the local temple of Apollo. Hadrianic adaptations of a mid fifth century original are instead the Dioskouroi dedicated by M. Iulius Cocceianus (Paribeni nos. 378-79, 386-88); Traversari proposes a restoration of the monument and discusses possible parallels.

The statue of a youthful but serious Dionysos leaning on a pillar and flanked by a panther is considered a copy of an Attic monument of the end of the fifth century B.C. E. De Franchi suggests that the piece is the missing link between the mid fifth century representations of a severe and elderly Dionysos and the mid fourth century creations which favor the young, slightly effeminate and inebriated type, so popular in Hellenistic times. This theory attributes undeserved importance to the Cyrenaic statue, which at best can only remotely suggest the presumed classical original because of its poor quality and the various additions and modifications made by the copyist. Its originality would have been lessened, had the author taken into account the head of Dionysos in Boston (L. D. Caskey, *Catalogue* no. 26). Reference should also be made to the so-called "Ariadne" from the Akropolis (Nat. Mus. 182), and its Roman copy in Berlin (Richter, *Sculpture and Sculptors* fig. 509) which is even closer to the Cyrenaic Dionysos because of similarity of technique.

Against Paribeni's identification of his no. 154 as Artemis, M. T. Fortuna sees in the headless statue a representation of Hera. A series of monuments in relief and in the round support her theory and dating of the original (around the middle of the fourth century B.C.). Three replicas of the Artemis Rospigliosi type have led L. Beschi to a detailed study of the Attalid dedication in Athens. He suggests that the Artemis is one of the deities which stood upon the S. wall of the Akropolis, and lists all the available copies and variants (to which might perhaps be added the statue in Boston, L. D. Caskey, *Catalogue* no. 51), tracing their derivation from three main types. The Dionysos in the Ny Carlsberg Glyptotek is accepted as a copy of another deity from the Pergamene dedication. The final monograph by L. Polacco deals with two Roman portraits—one copying the other—probably representing Annia Lucilla, daughter of Marcus Aurelius, between A.D. 175 and 182. The portraits, by the almost total absence of drill work (so common in the Antonine period) and various other characteristics, can be linked with several heads which belong to a "Greek, classicizing" current, in contrast with the prevailing "Roman, coloristic" tendencies of the time.

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"LE ISCRIZIONI DI ERCOLANO," by *M. Della Corte*. (Rendiconti dell'Accademia di Archeologia Lettere e Belle Arti di Napoli 33 [1958] 239-308.)

This presentation of all the epigraphical material except the *tabulae ceratae* that came to light in the excavations of Herculaneum between their resumption in 1927 and their suspension during the war (November 1941) is both useful and timely. It makes a welcome adjunct to the elaborate excavation reports so handsomely inaugurated last spring, and it appears at a time when the undertaking of further excavations makes stock-taking of the previous results particularly necessary. From time to time in the past Professor Della Corte has offered us rare and tantalizing plums from his harvest; here he gives us the whole of it, some 854 items.

The catalog is presented in the form of a daybook, the entries made under the dates of Professor Della Corte's frequent visits to the excavations as they progressed, and each group of inscriptions is accompanied by the code numbers by which the various buildings of the ancient city are now distinguished. Thanks to the author's clear and succinct notes on the provenience of each item the reader who has even a superficial acquaintance with the excavations is enabled to locate the find precisely. The chronological arrangement of the catalog was dictated by earlier publication of, or reference to, these inscriptions while this study was still in manuscript (e.g. in M. Della Corte and P. Soprano, "Onomasticum Herculanense," *RendNap* 27 [1953] 3-25). Unfortunately since this entails the dispersal of inscriptions from any individual building over the whole period of its excavation and their interspersal with other material, and since there are no indices, the sets of inscriptions properly belonging together must be collected by the reader, more or less laboriously, through these pages. This inconvenience is in part offset by the prosopographical index just mentioned and will be further offset by the index of *Notabilia Varia Herculanensia* the author promises us on the last page of the present article. But a topographical index would have been a great addition.

Unlike Pompeii, Herculaneum offers almost no testimony of municipal government and municipal affairs; to explain this lack Professor Della Corte suggests that the election of city magistrates was in the hands of the *decuriones* and was not hotly contested. Only two dipinti of an official nature are preserved in this group; these, together with a small group of inscriptions on stone, mostly fragmentary, and six *signacula* (bronze seals), comprise what may be called the major epigraphy of this report. The rest is divided among graffiti and dipinti of a casual nature, brick stamps, pottery stamps (especially Arretine), and inscriptions on amphorae. These have been transcribed by the author with his customary skill, scholarly imagination, and attention to detail, and the more interesting, as well as the more puzzling, are offered in facsimile on five plates.

On this showing the graffiti of Herculaneum are not a bit less entertaining or less enigmatic than those of Pompeii, and though inestimable losses in this direction have been sustained where the tunnels of the older excavations ran and destroyed the wall coats, enough has survived to delight both the devotee of the epigraphical puzzle and the student of ancient society. Some notion of the opportunities afforded by these inscriptions can be had from Professor Della Corte's delightful book *Amori ed amanti dell'antica Pompei* (Pompeii 1958), where he treats a few of them. Let us hope he has further studies of the same sort up his voluminous sleeves. The group of brick stamps offers many that are entirely new; the pottery stamps are extraordinarily numerous and interesting; and the amphora inscriptions, despite being on the whole rather unsatisfactory because of their frequent arbitrary signs and abbreviations, add considerably to the picture of the economic life of a small Campanian town. The reader is struck again, as always in Pompeii, by the amount of Greek in common use and by the oceans of *garum* and *liquamen* the ancients would seem to have consumed.

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LA CIVILISATION DE L'AFRIQUE ROMAINE, by *Gilbert Charles-Picard*. Pp. v + 407, maps 5, ills. 49. Librairie Plon, Paris, 1959.

This paper-bound and well illustrated book is presumably meant more for the reading public and scholars of broad interests than for the specialist on Roman Africa. It is equipped with nearly forty pages

of notes, however, which show the author's reasons for some of his statements and serve to guide the reader to further reading.

M. Picard does not intend to give all the political details (Romanelli's recent book complements this one admirably in this respect). He begins at the time of Caesar, taking earlier history for granted. His first chapter, "La révolution politique," describes the process of bringing the African peoples to accept the Roman way and to build and inhabit cities all over Africa. His description of the relations between city and country people on page 43 is a good example of his scholarship, good sense, and ability to write.

In the second chapter, "La révolution économique," he describes the economic development of the country under the Romans. The story is well and interestingly told, with touches of sharp analysis here and there. The careful attempt to calculate the number of the population will repay attentive reading. On the other hand, on pp. 98-99 he yields to the temptation, which has assailed so many scholars, to seize upon some unfortunate trait of life under the Empire and to assert that it was a major cause of the so-called decline and fall without bothering to trace the sequence of causations with rigid method, as a historian is bound to do.

Chapter three, "Le problème social," is attractive. He studies "la hiérarchie," which in the language of nowadays is the system of status. The chapter attempts, in the modern manner, to show class relations in process rather than as structure, and does it well.

The other three chapters, entitled "Vie urbaine et confort," "Les moeurs," and "Le baroque africain," round out the picture of North African life to the time of the Severi.

In "Conclusion" (pp. 354-58) the author takes issue with those who would call this merely a colonial civilization. He makes it plain that it was one of his purposes to show that the North Africans refashioned in their own manner everything which they took from the Romans. He has shown this, but has perhaps not pointed it up clearly enough so that the reader will realize that many statements are aimed at such a demonstration. The question of the style of civilization in Roman Africa would be more effectively stated and discussed here and elsewhere, I believe, if there were more attention paid to the shrewd methods of the Romans in attempting to build up here and in other provinces a society which should be sound and should be as far as possible united in attitudes which would tend to hold it together.

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INSCRIPTIONS GRECQUES ET LATINES DE LA SYRIE, vol. V: ÉMÉSÈNE, by *Louis Jalabert* and *René Mouterde, S.J.*, with the collaboration of *Claude Mondésert, S.J.* (Institut français d'archéologie de Beyrouth, Bibliothèque archéologique et historique, vol. LXVI.) Pp. 341, 1 map. Librairie Orientaliste Paul Geuthner, Paris, 1959.

The first fascicule of the *Inscriptions grecques et latines de la Syrie* appeared in 1929 under the joint editorship of the RR. PP. Jalabert and Mouterde, S.J. After the death of P. Jalabert the work was carried on by P. Mouterde, recently with the assistance of P. Mondésert, but P. Jalabert's name rightly continues to appear on the collection, since an appropriate share of the work has been prepared by him. The many scholars who have experienced the kindness and generosity of P. Mouterde will rejoice with him, as he approaches his eightieth birthday, to see the publication of the collection progressing so rapidly. Volume VI will appear in 1961 and the preparation of volume VII (the last) is well advanced. A photographic atlas of important dated inscriptions is planned.

The present volume contains 712 texts (20 Latin, the remainder Greek), many published here for the first time, the others repeated from earlier publications, often with improved texts and with the learned and prudent commentaries which characterize the collection. A useful feature is the translation of the texts. There are copious indexes and a sketch map. The enrichment of our knowledge by this collection may be estimated from the fact that while Waddington in the last century collected 17 texts at Homs, the present volume contains over 200, not counting the *instrumentum*.

In a review it is possible only to indicate a few of the special points of interest in such a volume as this. The largest single group of important texts are the inscriptions of the two "treasures" of Christian liturgical silver found at Hama, along with inscriptions on other liturgical objects which did not form part of these treasures (Nos. 2027-2049). Here conveniently assembled is the complete record of the discovery and publication of this important silver, with an excellent commentary. Elsewhere in the volume are important minor objects of all kinds, including inscribed gems, glass and jewelry. One comes upon an unpublished magical *tabella* (No. 2494); an unpublished text on the right of asylum (No. 2501 *bis*); a valuable commentary on a Latin hexameter inscription (*CIL* III 6660 = Buecheler *Carmina latin. epigr.* I 296); an important text of Domitian concerned with the requisition of animals for the *cursus publicus*. There are 13 magical inscriptions and a large number concerned with the Roman and Byzantine army and the administration of Syria. There are three Rhodian stamped amphora handles and four pieces of *terra sigillata*. The volume as a whole is valuable testimony to the Graeco-Roman and Christian penetration of parts of Syria which are not well known.

Scholars will be grateful for this volume and will await its successors eagerly.

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THE EXCAVATIONS AT DURA-EUROPOS (conducted by Yale University and the French Academy of Inscriptions and Letters). FINAL REPORT V, PART I, THE PARCHMENTS AND PAPYRI, by *C. Bradford Welles, Robert O. Fink*, and *J. Frank Gilliam*. Pp. xxviii + 457, pls. 71. Yale University Press, New Haven, 1959.

Although specialists have known for many years that a few papyrus documents which emanated from Egypt were brought to Western Europe, where they survived until their rediscovery in modern times, and although they have known that a number of documents and tracts of the Middle Ages were written on papyrus, still the belief gained wide currency that papyrus was preserved only in the dry soil of Egypt. The famous rolls from Herculaneum were, of course, preserved under extraordinary circumstances. And, to be sure, the preservation of parchment is yet another matter. Hence the publication in 1915 of three parchments from Persian Kurdistan (E. H. Minns, "Parchments of the Parthian Period from Avroman in Kurdistan," *JHS* 35 [1915] 22-65) did not shake the widely held view concerning the possibility of the survival of papyri outside Egypt. But only a few years later, in 1921 and to continue to 1935, came the finds of parchments and papyri at Dura, and between 1935 and 1937 the Colt Archaeological Expedition unearthed at Nessana, in Palestine, an extensive collection of literary and documentary papyri (*P. Nessana*, I and II, edited by C. J. Kraemer, Jr., E. L. Hettich, and L. Casson [Princeton 1950, 1958]). Twelve years later still, in the belief that "such a list will be highly welcomed by fellow-papyrologists," Professor Raphael Taubenschlag published his article entitled "Papyri and Parchments from the Eastern Provinces of the Roman Empire Outside Egypt," in *JJP* 3 (1949) 49-61. Eighteen papyri and parchments from Dura appear in his lists; for some reason unknown to us, *P. Dura* 13 (a legal document of the type especially selected for mention in the article) was not included (the *P. Dura* 13 cited there is actually *P. Dura* 23).

The materials that derive from the unusually extensive excavations at Dura constitute, as Professor Welles tells us (p. ix), "a closed body of material from an excavation of rather unique character," and for this reason every fragment of a document from which any meaning at all could be drawn has been included in this Final Report V, Part I, *The Parchments and Papyri*, of *The Excavations at Dura-Europos*. Of the 155 numbered items in the volume, 40 are parchments, one (No. 53) is a waxed tablet, and the remainder are papyri, which include two Aramaic and three Iranian documents. The study of these papyri and parchments has been pursued with the full panoply of the historian (literary, papyrological, epigraphic, archaeological, and numismatic), but since the Introduction and commentaries are not meant to be completely exhaustive discussions, it will be well to let Professor Welles' own words explain their function (p. ix): "Commentaries are, it is hoped, full enough to make things clear but no more. They depend in some part on the preliminary publications for a fuller discussion. The introduction is a summary of the historical conclusions, and is intended to be read in conjunction with the texts themselves. Here again . . . commentary is intended only to call attention to what is here, not to place things in their setting in the history of antiquity." A praiseworthy feature of the volume is the very liberal provision of 71 excellent plates.

Thirty-six (but of these, two only in part) of the papyri in Final Report V, Part I have already appeared elsewhere in "preliminary" publications. Of these thirty-six, seventeen are extensive and important in content, and a number of them have already been discussed by various scholars in a wide range of scholarly publications. Two are especially famous: No. 10, Tatian, *Diatessaron*; No. 54, The Feriale Duranum. Of the 120 parchments and papyri which are published for the first time in Final Report V, Part I, five are especially extensive and important. No. 66, a *tomos synkollesimos* composed of parts of more than fifty letters (fifteen of them in Greek) of A.D. 216, constitutes what the editor calls the "Correspondence File of Postumius Aurelianus, Dealing Mainly with Personnel." Nos. 100-102 are lengthy rosters which, along with the "Morning Reports" (*ὑπομνηματισμοί, commentarii*; especially No. 82, but also Nos. 83, 88, 89 and, questionably, Nos. 84, 85, 87), give us a more complete idea of the record-keeping of the Roman army than we have had hitherto. In the words of Fink (p. 36), ". . . the Dura papyri contain numerous and extensive examples of types of military documents either unknown before or known only from very fragmentary texts."

A few interesting and important matters in the volume may be singled out for brief mention. Before the coming of the Romans, parchment was the regular writing material at Dura. The earliest extant parchments, Nos. 15 and 34, were inscribed in the second century B.C. And parchment was still used there as a material for writing as late as the middle of the third century A.D., but by that time the highly favored material was papyrus, of which the earliest *dated* Dura texts, Nos. 56 and 57, belong to A.D. 208. Professor Welles reminds the reader, however, that No. 54, the Feriale Duranum, which was written on papyrus, may belong to an earlier date. The proper names in the Dura papyri—in the inscriptions, as well—provide us with an important source of information for demographic studies (see Welles' article "The Population of Roman Dura," in *Studies in Roman Economic and Social History in Honor of Allan Chester Johnson*, edited by P. R. Coleman-Norton [Princeton 1951] 251-74) and for the interesting influence of Semitic upon Greek and Roman nomenclature. Linguistically, the Dura papyri are of interest, especially for their conclusive evidence that the scribes of Dura had had a thorough training in the standard Attic dialect of the fourth century B.C. And in another connection, calling

attention to the similarity of the language of No. 13 to the language of Ptolemaic documents, Welles makes the observation that Seleucid and Ptolemaic concepts of administration were closely related and that the differences, such as they were, were occasioned by the adaptation of their procedures, each to their own special problems and materials.

In conclusion, this reviewer would express the opinion that this publication is a distinguished contribution of lasting value to the study of an important area of the life of the ancient world. Dedicated "In Memory of Franz Cumont and M. I. Rostovtzeff, From whose example and encouragement this study has taken its form and inspiration," it may be said that the volume upholds the high traditions which have been its inspiration.

JOHN DAY

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THE NUMISMATIC ICONOGRAPHY OF JUSTINIAN II (685-695, 705-711 A.D.), by *James D. Breckenridge*. (Numismatic Notes and Monographs No. 144.) Pp. x + 104, pls. 10. The American Numismatic Society, New York, 1959.

To the numismatist, "Justinian" is just as likely to mean the second holder of the name as Theodora's consort. The issues of Justinian I are vital for a definition of social and economic history. Those of his namesake, beyond this, express the very essence of Byzantine culture at a crucial point in its development. They are integral to any treatment of Byzantine art, iconoclasm, theology, court ritual and politics. The types are as few as the problems they raise are many and difficult. Any student of them must be prepared to plunge deep into waters often uncharted and more often than not muddy, to extract one oyster of truth. Mr. Breckenridge fishes well: he not only produces the oysters, but even some of the pearls. The American Numismatic Society is to be commended for this addition to its distinguished series.

The first emperor to put the image of Christ on his coins chose two different models: the "older" Christ with wavy hair and beard, rounded head, and clearly parted hair, all reminiscent of the ultimate model, the Phidian Zeus; the second, a thin and triangular face, scanty and curly hair and beard, is the Christ of the Rabula Gospels, and of Syrian or Palestinian origin. Type A represents Christ's rule on earth through His Basileus; Type B is a palladian figure invoked in aid of the dynasty. Justinian's coinage gives large expression to the increasing interrelation of thought on matters of church and state. Their harmony is admirably symbolized by the coin types, on which obverse and reverse combine to form a single integrated statement. Still, it is a passionate, not a comfortable harmony, built more on the pious hopes of the principals than tempered by the realities of time. Does not the very closeness account also for the friction and confusion of the succeeding centuries? The marriage had first to be tested in the cauldron of iconoclasm before it could issue into that more noble union which combined to defeat the opponents of images.

By a judicious application of historical method, the author traces the origin and subsequent development not only of the Christ, but, in turn, the imperial figure and the legends on the coins. The technique allows him to draw on a wealth of documents and references which make of his text not simply a specialized study but a repository of information on a host of Byzantine ideas and institutions. His standards are irrefutable. For example, it is salutary to see punctured once again (p. 67) that strangely persistent balloon that the Arabs were immediately responsible for Justinian's coinage reform. As the author intimates, it is practically axiomatic to explain a Graeco-Roman form within its own particularistic culture if you possibly can. There are *very* few exceptions and this is not one of them.

The plates are adequate. There are a few more misprints in the Greek than we have come to consider acceptable these days: a minor blemish to a solid, original, and lucid monograph.

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ANCIENT MEXICO, An Introduction to the Prehispanic Cultures, by *Frederick A. Peterson*. Pp. 313, pls. 24, text ills. 93, maps 6. G. P. Putnam's Sons, New York, 1959. $7.95.

It is impossible for a book treating a complex subject to satisfy all readers. In this case, Peterson has chosen to please an audience of average intelligence, and apparently specifically the already-traveled Mexican tourist group with which he was personally familiar, if the omission of introductory references to Mexico's lands and peoples is any indication. "This book," states the Preface, "is intended as a general introduction to pre-Columbian Mexico, with the hope of arousing interest in that ancient land." The method of this introduction is the overworked one of describing in detail the archaeological and historical background not of Mexico but of the central Valley of Mexico, seat of the Aztec and modern capital, with just enough side glances at the rest of the country to indicate that this highland development was not an isolated instance. Perhaps three-fourths of the discussion is of the Valley, with most of this devoted to the history and culture of the Aztecs.

Ancient Mexico thus inevitably invites comparison with G. C. Vaillant's classic "Aztecs of Mexico" (first published in 1941) to which it has been heralded as a successor, and with the recent popular works by V. W. von Hagen on pre-Hispanic Mexico. Through in-

corporation of the results of subsequent archaeological research, the present volume corrects the Vaillant alignment of the storied Toltecs with the ruins of Teotihuacan and shows instead their now recognized identity with the ruins of Tula in the state of Hidalgo. The builders of Teotihuacan remain unidentified by the Mexican or Spanish chroniclers. The historical sequence in the Valley, including that of the "Middle Cultures" first synthesized by Vaillant, is brought up to date by Peterson. His style is also more readable, though lucidity is sometimes hampered by faulty organization. In contrast to the writings of von Hagen, *Ancient Mexico* is a fuller, more authoritative first hand account, and one less burdened with repetition and unrelated literary asides.

The Preface to this volume goes on to state that the "aim has been to present a coherent account, with small attention to conflicting interpretations." As a further aid to coherence and in condescension to popularization all research helps such as footnotes or references to published works are avoided, with rare exceptions. The bibliography is selected and no attempt has been made to list the great quantity of sources from which the author has drawn information. The numerous authorities casually mentioned in the discussions are rarely identified and their publications are almost never mentioned. This uncritical approach will hamper textbook or reference use despite the wealth of data rather accurately presented, some of it not readily available elsewhere in English.

Even as an example of popular archaeological-historical interpretation *Ancient Mexico* suffers from a number of serious shortcomings. First, as already noted, there is no introductory description of the geographic setting in which the saga of ancient Mexico has taken place. This is a serious lack in view of the prominent role played by rugged topography and varied climatic conditions in the formation of the many regional cultures so typical not only of Mexico but of all Middle America. Further, there is no general introductory statement of the history of archaeological investigations in all of Mexico, nor any adequate explanation of the means by which chronological periods and cultural entities have been established. The reader is not introduced to the method to be followed by the text, which in general may be described as over-compartmentalized, with no attempt made to correlate information in the various sections. An unreasonable attitude toward the reader's knowledge is reflected again and again in allusion to subjects lacking any introduction, a practice particularly annoying in the early chapters—areas, places, tribes, events, ceremonies and individuals are mentioned casually without antecedents, identification or description. No summary account of the Spanish conquest of Mexico is given, though aspects of this event are frequently noted. Dates of the Conquest are not definitely stated, though there are incidental references to cultural conditions or historical circumstances prevailing "by 1518," "by 1519," or "in 1520." Cortez is mentioned frequently but incidentally. The author constantly presumes his readers to have a considerable knowledge of Mexico gained from travel or prior reading. This lack of explicitness, lamentable in an introductory work, seems to be attributable to the author's long personal familiarity with the area, gained from over ten years' residence in Mexico as a student, journalist, and anthropologist. As one overly familiar with much of his subject, he seems to take much of its background for granted.

The method of presentation of *Ancient Mexico* follows closely that of *Aztecs of Mexico*, with the first five chapters devoted to archaeological and historical background and the remainder to the description of the material culture and social structure. A basic difference exists between the approaches used by the respective authors, however. Whereas Vaillant was primarily concerned with historical and cultural processes, Peterson has aimed at presenting an adequate ethnography augmented with data drawn from non-Aztec cultures. The two volumes, therefore, should be considered complementary and not duplicative.

Chapter I, "Early Man in Mexico," traces briefly the peopling of the Americas and gives an account of the discoveries recently made in the Valley of Mexico which have proved the contemporary existence there of man and numerous now extinct animals including the mammoth. Chapter II attempts to show the development and elaboration of sedentary life in Mexico. The cultural sequence is described in terms of the Valley of Mexico. Treatment of other zones is brief and unintegrated. Presentation in detail only of the Valley of Mexico sequence is apt to be misleading, as the Valley appears to have been a marginal area almost up to the beginning of the Christian Era. Neither incipient agriculture nor village farming (nor even urbanism) are thought to have had their origins in the Valley, and ceremonial architecture has been found earlier at sites in other parts of Mexico, such as La Venta, Tabasco (see below) and Chiapa de Corzo, Chiapas (Phase III). Stereotyping the Lower, Middle, and Upper Preclassic stages in the Valley of Mexico as "First Farmers," "The Magicians," and "First Architects and Priests," respectively, is therefore equivocal and should not be extended to Mexico as a whole.

Chapter III, "Man Remodels Mexico," is an uneven delineation of the Classic period developments throughout Mexico. There is no reference to the map of sites (fig. 6) which appears toward the end of the book in the chapter on "Pottery and Potters." Instead, reference is made to fig. 2, a map of linguistic groups which shows none of the sites mentioned. It should be noted that the Olmec site of La Venta included in this chapter (p. 57) properly belongs in the preceding one with the discussion of the Middle Preclassic ("Magicians") stage. Inclusion in the La Venta description of the recently determined Carbon 14 dates ("between 800 and 250 B.C.") was apparently a last minute addition to the text (cf. M. D. Coe's review of Drucker, Heizer,

and Squier, *Excavations at La Venta, Tabasco*, in the *AJA* for January, 1960).

Two chapters, "Ebb and Flow in Mexico," and "Empire Building in Mexico," complete the historical section. There is some overlap in the two chapters as the former describes central Mexico events from about A.D. 900 to the Conquest, with a slight allusion to events elsewhere in Mexico, and the latter is an account solely of the Aztec ascendency and the growth of their tribute empire.

The final eleven chapters of the book are devoted to the description of aspects of pre-Hispanic Mexican culture. The Aztec example is the model in each case, but, whenever convenient, material has been included from at least the ancient Maya counterpart and occasionally post-Conquest survivals are offered to round out the presentation. Throughout, the author has added anecdotes from the early chronicles and has sprinkled in personal observations and occasional humor. The book is well illustrated, though the excellent photographic plates are not coordinated with the text in spite of their pertinence. There is no concluding chapter, a noteworthy fact in view of the challenging statements made in the Preface respecting the poor state of present knowledge, Western ethnocentricity, pre-Columbian Old and New World cultural equivalency, and the possible role of New World research in solving cultural problems of a general nature. Apparently the author feels that his material speaks for itself and leaves the reader to judge for himself in these matters.

In sum, a mixture of long training and wide personal experience in Mexico combined with extensive research and a popular approach has enabled Peterson to produce a savory Mexican dish of many flavors. This reviewer has the opinion that had *Ancient Mexico* been left stewing longer in the pot a truly outstanding book might have resulted, but as presently issued a great many minor shortcomings combine to limit its usefulness. Nevertheless, all Americanists will want to sample it thoroughly, and those non-specialists fond of Mexican lore may find it to be genuinely rewarding and piquant fare.

GARETH W. LOWE

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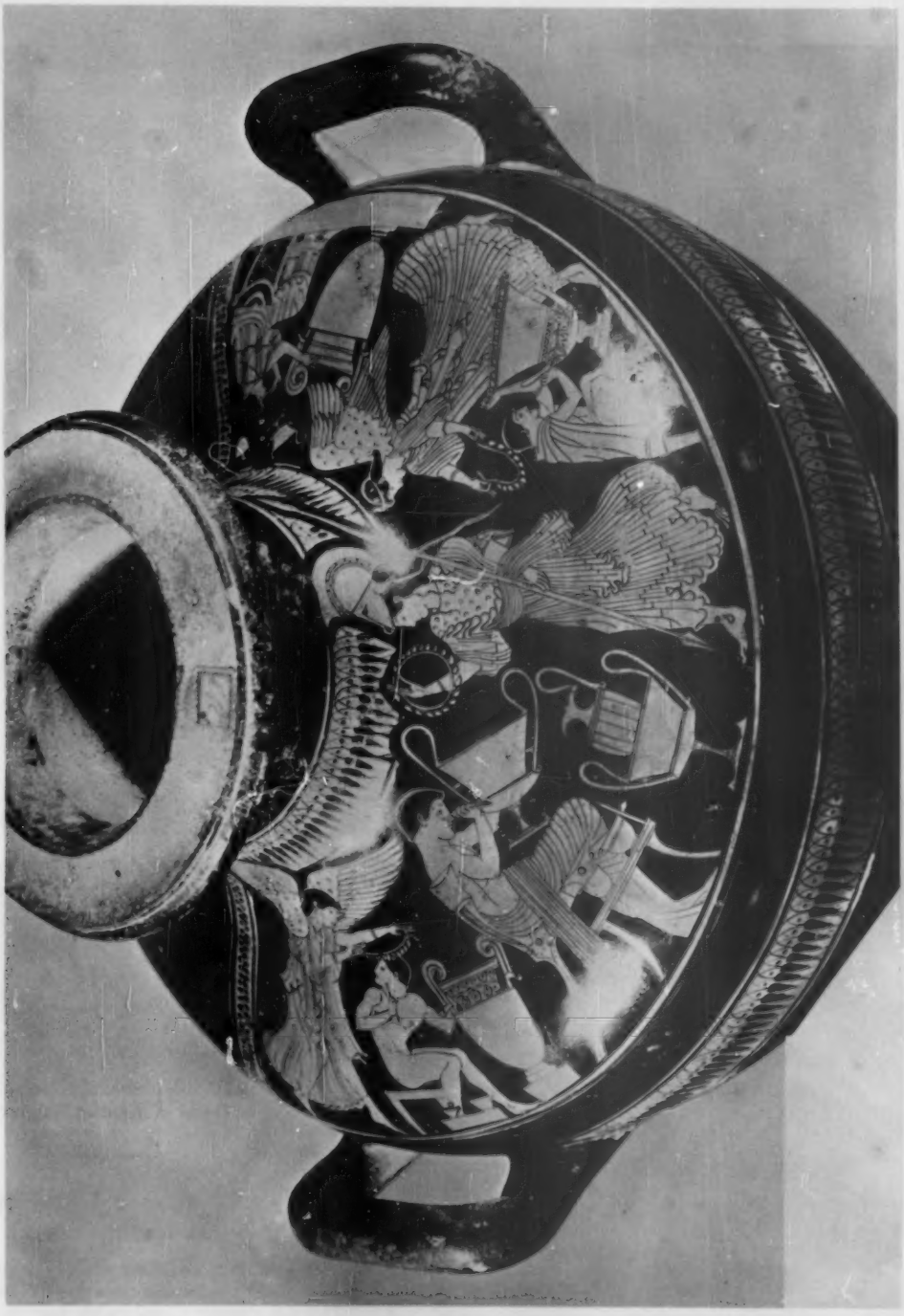

FIG. 1. Attic red-figured hydria by Leningrad Painter in private collection, Milan

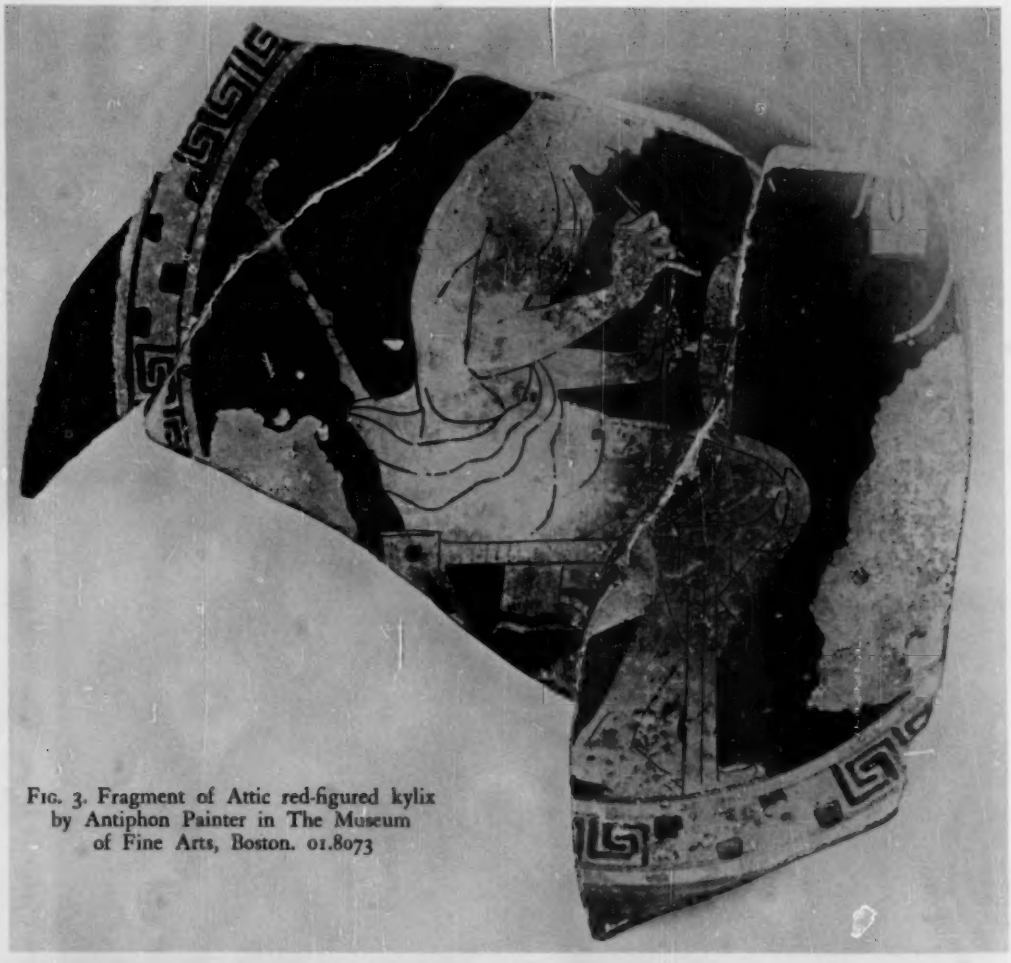

FIG. 3. Fragment of Attic red-figured kylix by Antiphon Painter in The Museum of Fine Arts, Boston. 01.8073

FIG. 2. Detail of Attic red-figured amphora by Berlin Painter in The Metropolitan Museum of Art, New York. MMA 56.171.38. Fletcher Fund

FIG. 6. Detail of Apulian fragment

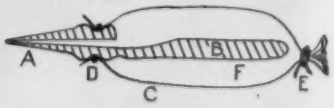

FIG. 5. Proposed Attic drawing syringe A, nozzle; B, nozzle extension for control of instrument; C, collapsible bag; D, bag tied to nozzle; E, opening used to fill bag; F, black glaze matter

Fig. 8. Attic red-figured lekythos by Painter of the Paris Gigantomachy

Fig. 7. Modern reproduction of head from lekythos in fig. 8

10. Attic red-figured kylix by Villa Giulia Painter

Fig. 4. Reproduction of Attic relief line using syringe

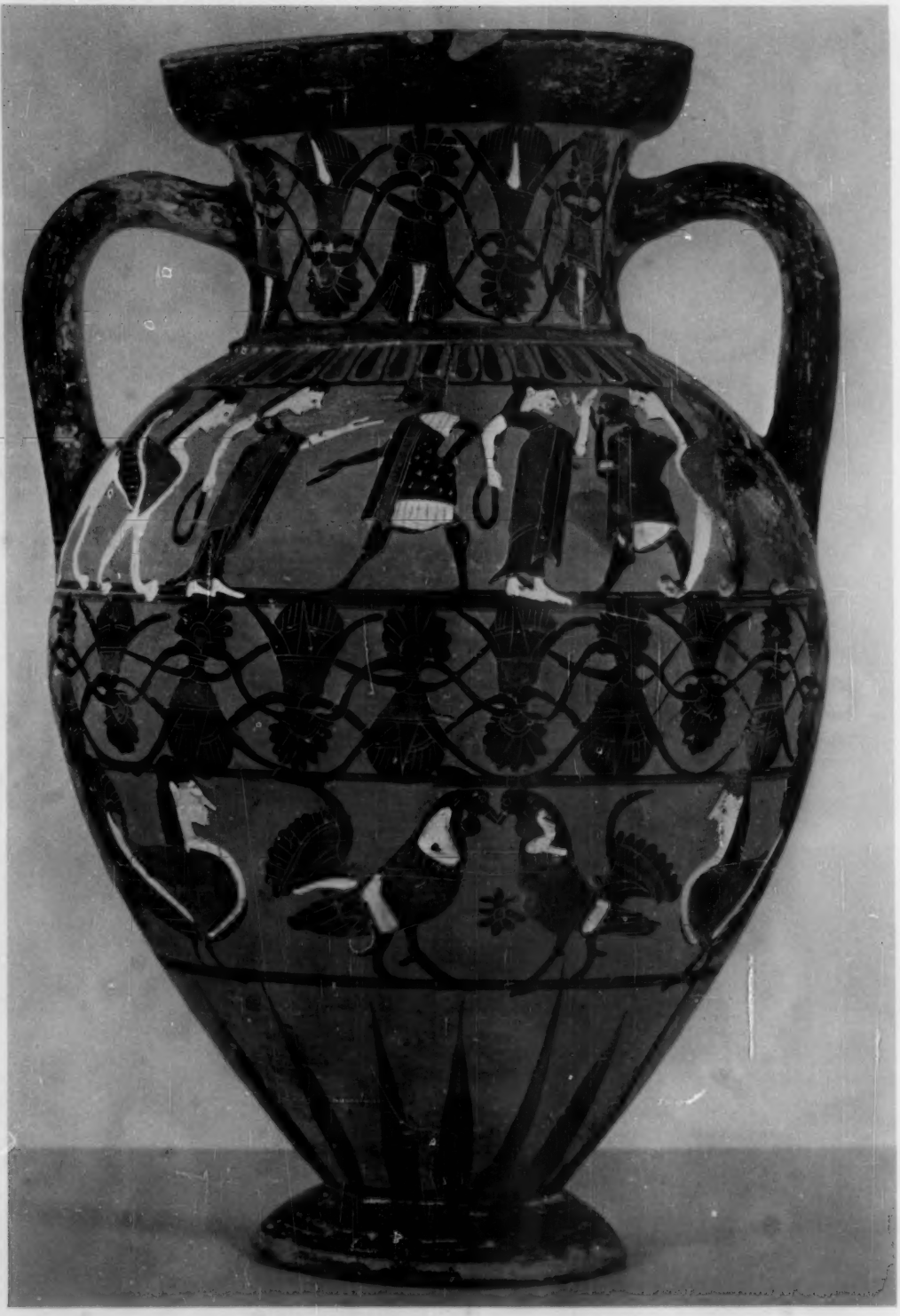

FIG. 9. Attic black-figured amphora by Goltyr Painter

FIG. 1. Griffin protome. Bronze. Barberini Tomb (after Maxwell-Hyslop, *Iraq* 18, pl. xxvii,2)

FIG. 2. Griffin protome. Bronze. Olympia (after *GG* 71)

FIG. 3. Eagle-griffin. Middle Assyrian (after *Corpus* 608)

FIG. 4. Eagle-griffin. Samaria (after Crowfoot and Crowfoot, *Samaria-Sebaste* II, pl. xiv,4)

FIG. 5. Eagle-griffin. Mycenaean (after Kantor, *The Aegean and the Orient in the Second Millennium B.C.* pl. xxiii,2)

FIG. 6. Lion-griffin. Assyrian (after Frankfort, *Art and Architecture of the Ancient Orient* fig. 38)

FIG. 7. Lion-griffin. Middle Assyrian (after *Corpus* 594)

FIG. 8. Lion-griffin. Middle Assyrian (after *Corpus* 607)

FIG. 9. Lion:bull-griffin. Nimrud (after Parker, *Iraq* 17, pl. xi,3)

FIG. 10. Lion-griffin. Middle Assyrian (after *Corpus* 596)

FIG. 11. Griffin protome. Bronze. Delphi (after *GG* 75)

FIG. 13. Lion standard on foundation stone. Cassite (after Speiser, *Vorderasiatische Kunst* pl. 71)

FIG. 12. Luristan lion head

FIG. 14. Lion-griffin. Late Assyrian (after *CylSeals* xxxiii,k)

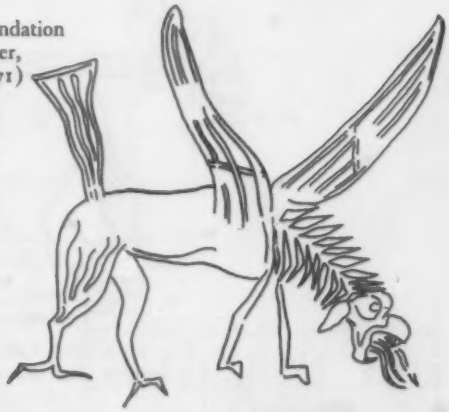

FIG. 15. Lion-griffin. Akkadian (after *CylSeals* xxii,d)

FIG. 16. Griffin protome. Bronze. Samos (after *GG* 36)

FIG. 17. Lion-griffin. Phrygian (after Akurgal, *Phrygische Kunst* pl. 56)

FIG. 18. Lion-griffin. Phrygian (after Akurgal, *Phrygische Kunst* pl. 56)

FIG. 19. Lion-griffin. Corinthian (after Cook, *BSA* 34, fig. 19)

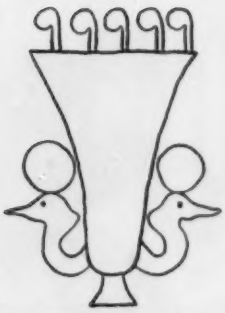

FIG. 22. Syrian tribute vase (after Bossert, *Altsyrien* no. 924)

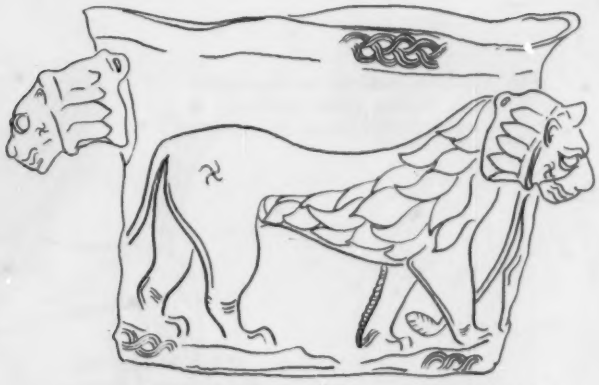

FIG. 21. Goblet. Gold. Kalar-Dasht (after *Exhibition of Iranian Art*, Metropolitan Museum of Art, no. 4)

FIG. 20. Griffin jug. Cycladic (after *Art Treasures in The British Museum* fig. 61)

FIG. 23. Sun-bearer. Karatepe (after Vieyra, *Hittite Art* no. 106)

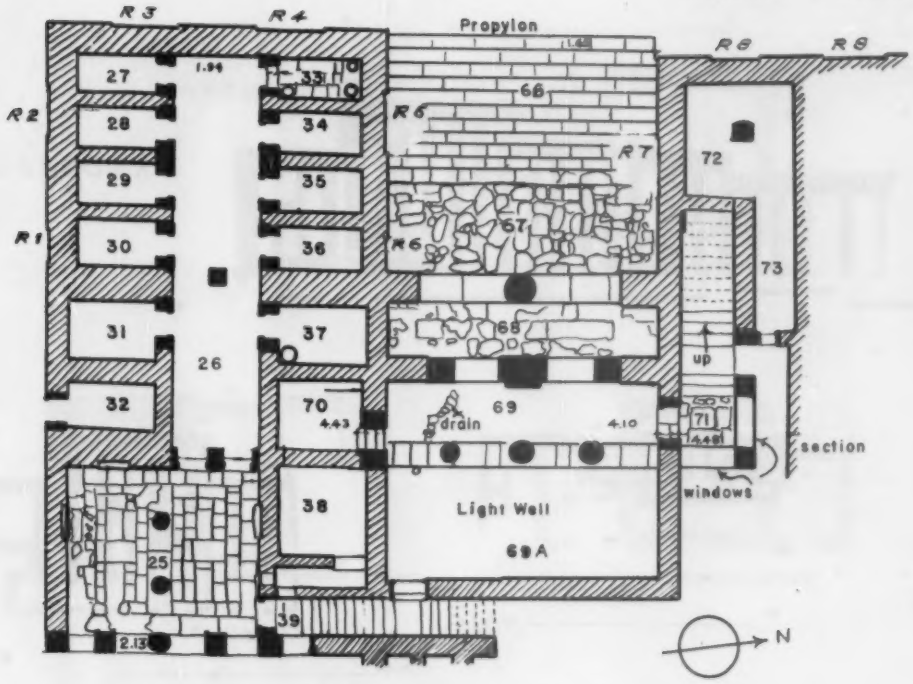

Fig. 1. Plan of Propylon-Magazine Block, Phaistos

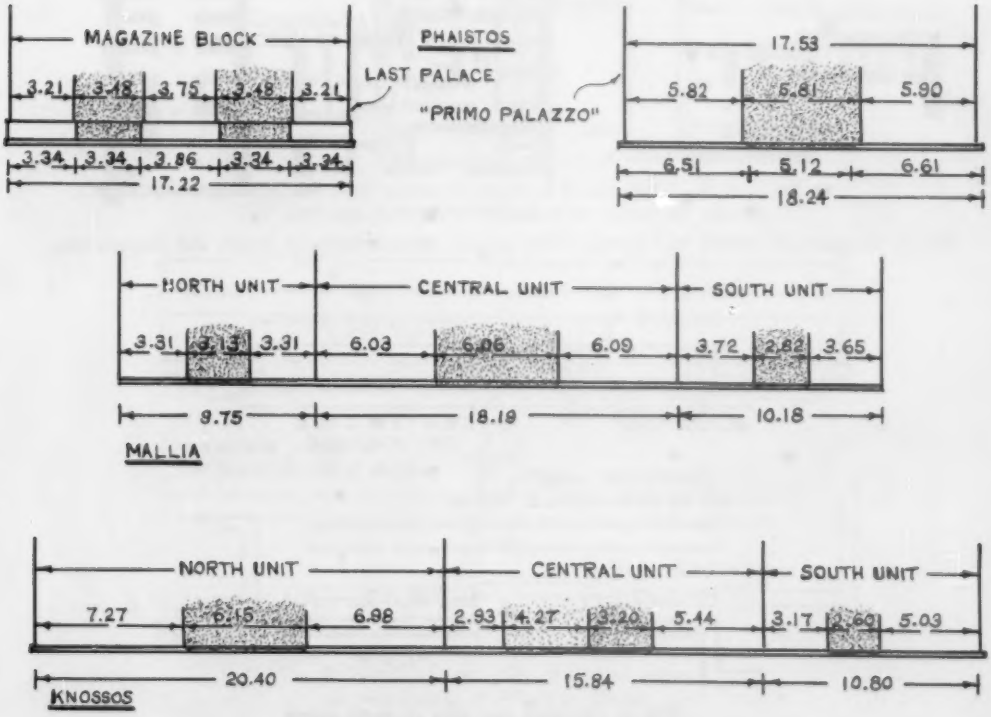

Fig. 2. West façade elements with recesses

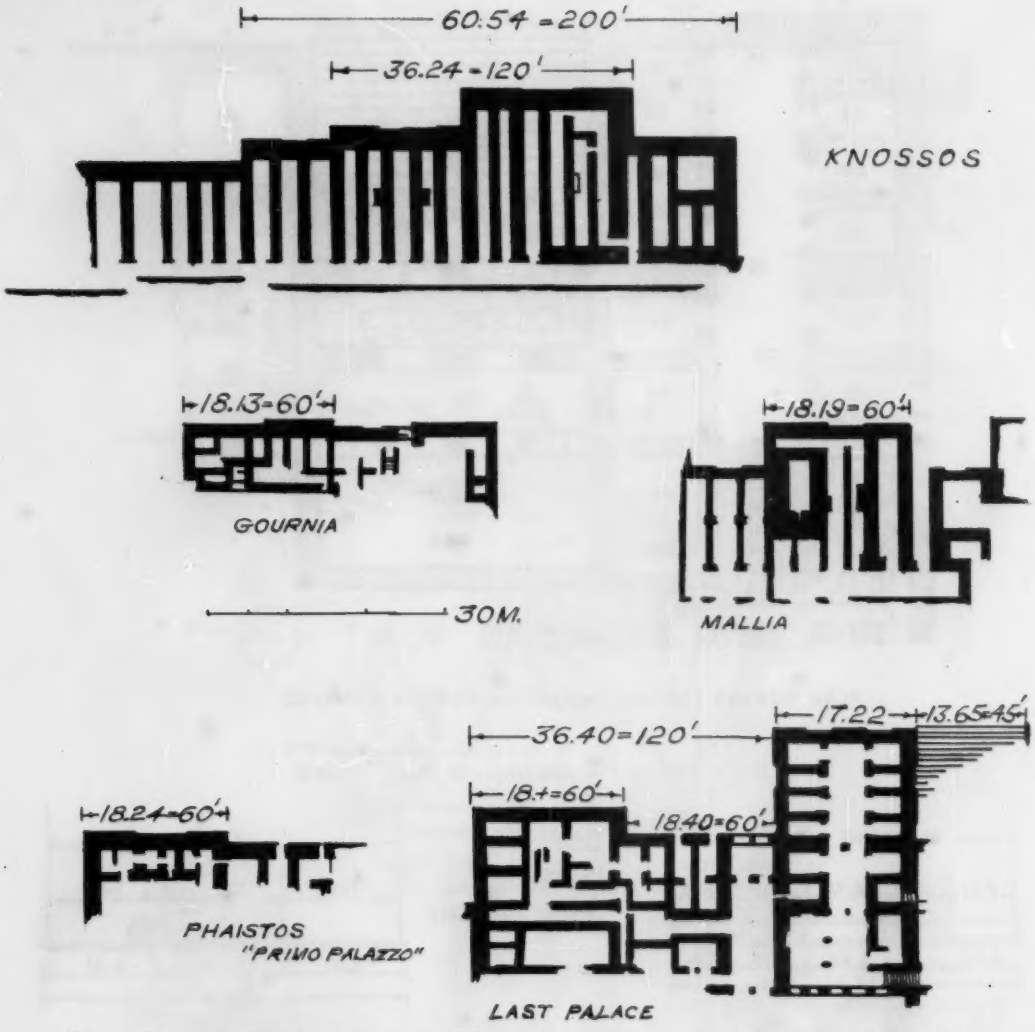

FIG. 3. Diagrams of central west rooms of five palaces, measurements in meters and Minoan feet

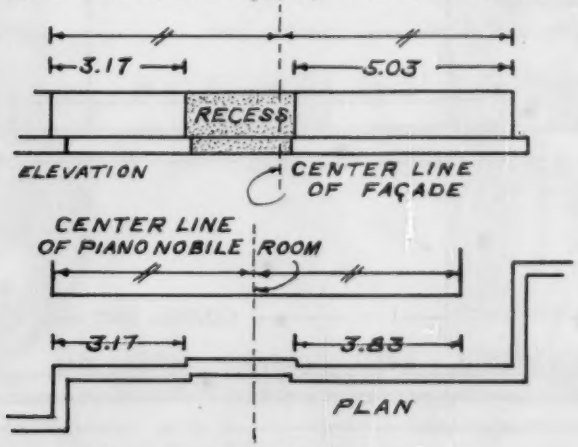

FIG. 4. Elevation and plan of south recess of west façade of Palace of Minos

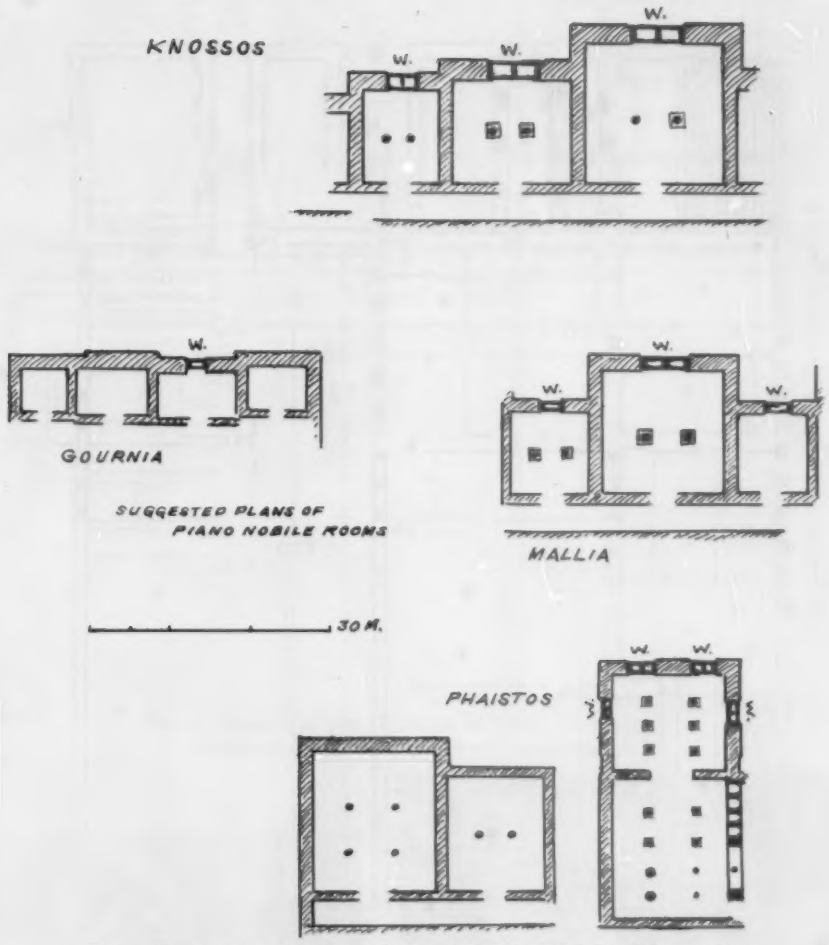

Fig. 5. Suggested restorations of rooms of Piano Nobile of four palaces. "W" indicates position of windows as shown by recesses

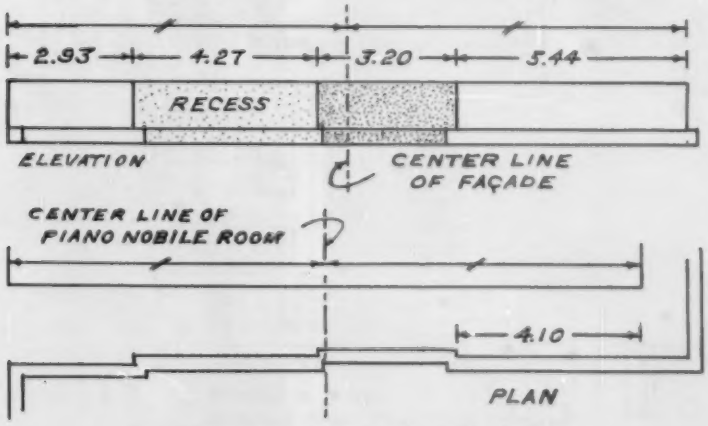

Fig. 6. Elevation and plan of central recess of west façade of Palace of Minos

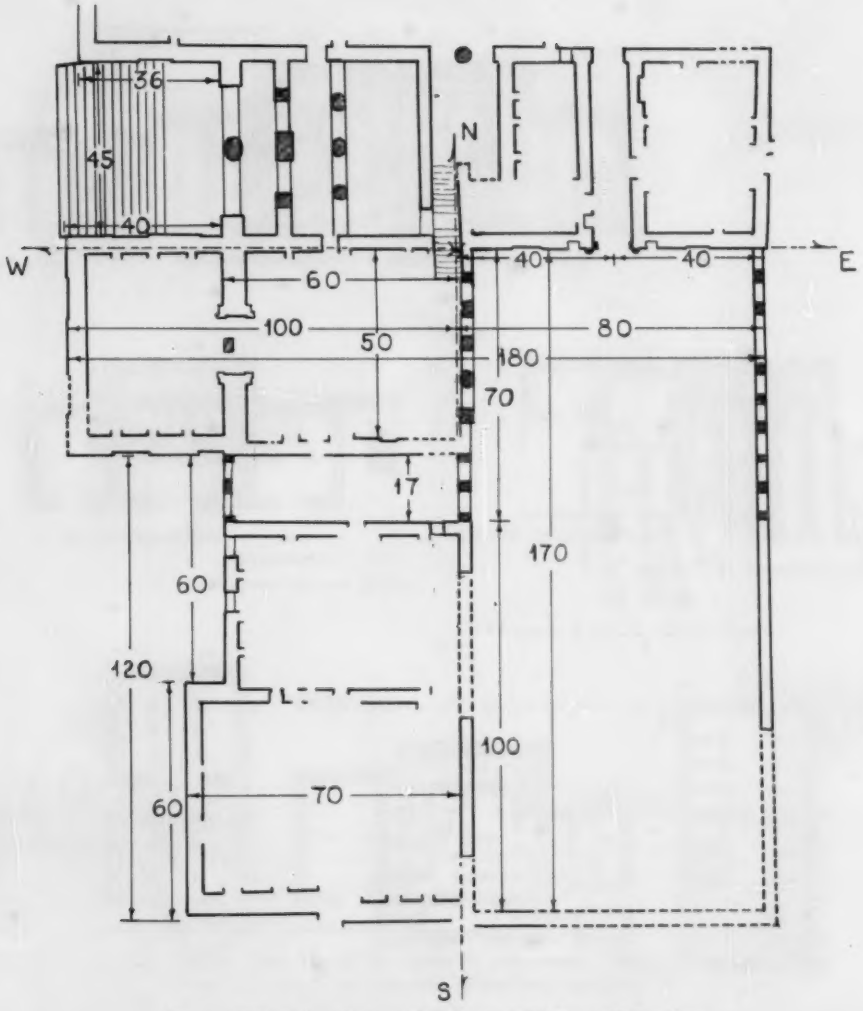

FIG. 7. Diagram of part of Palace of Phaistos illustrating dimensions in round numbers of Minoan feet

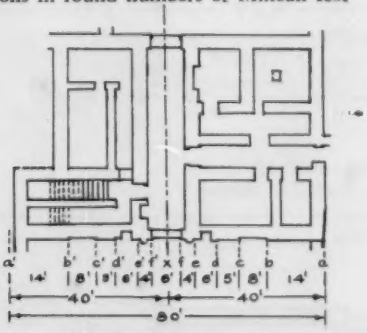

FIG. 8. Diagram to illustrate planning of north façade of Central Court at Phaistos

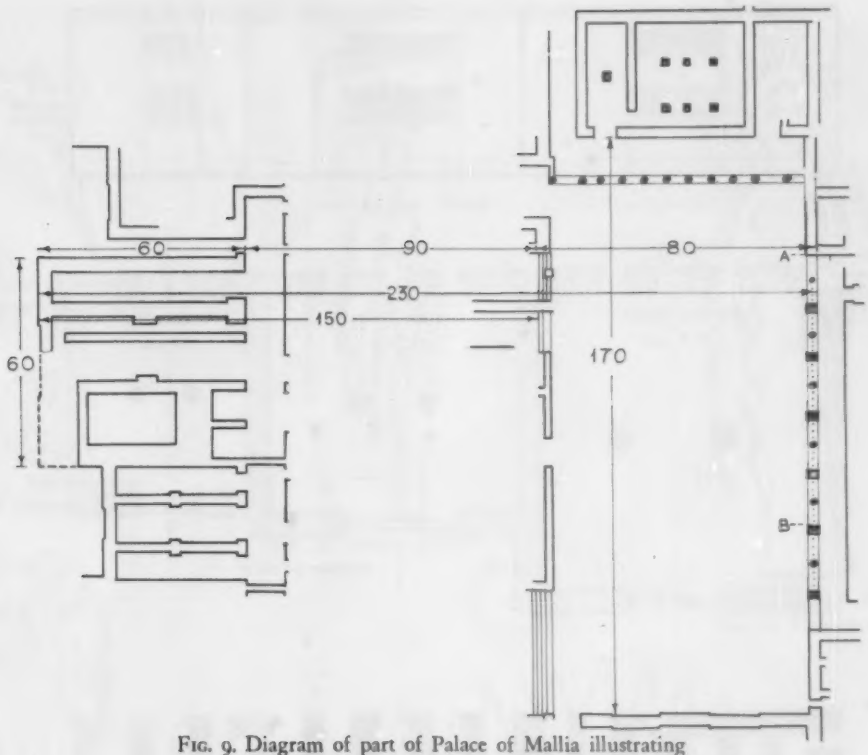

Fig. 9. Diagram of part of Palace of Mallia illustrating dimensions in round numbers of Minoan feet

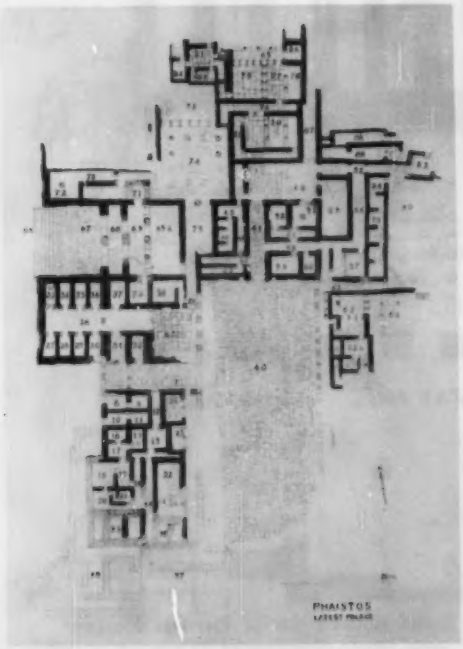

Fig. 10. Plan of last Palace of Phaistos (adapted from *Festòs* II, pl. 2)

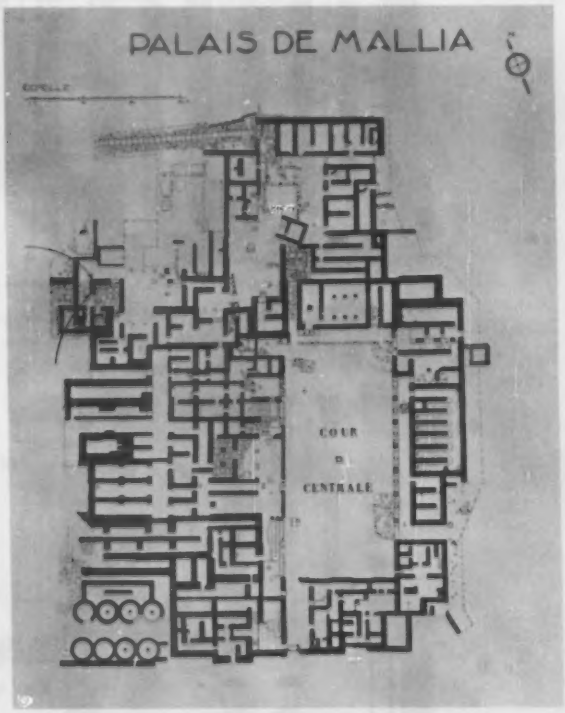

Fig. 11. Plan of Palace of Mallia (from Chapouthier, *Deux épées d'apparat* [1938] fig. 1)

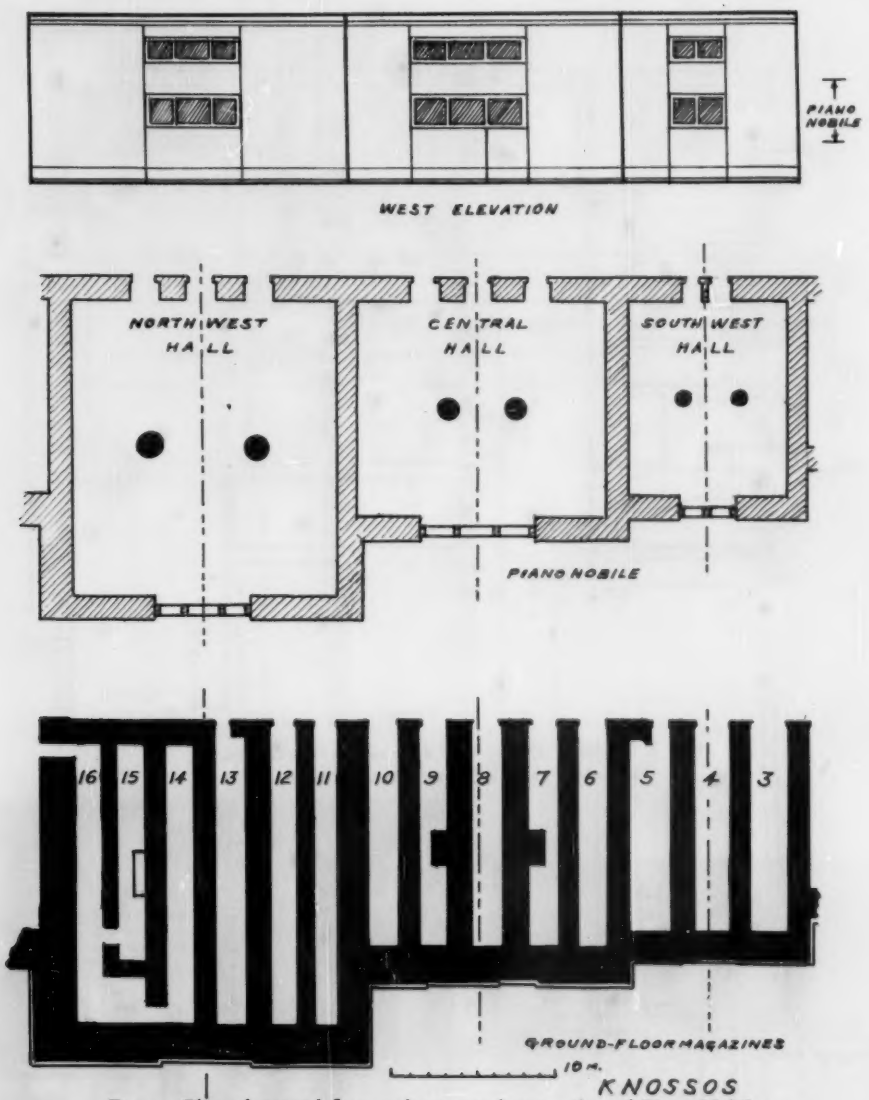

FIG. 12. Plan of ground floor and suggested restoration of Piano Nobile and elevation over west rooms of Palace of Minos

FIG. 13. Evans' restored plan of Piano Nobile over west rooms of Palace of Minos

FIG. 1. Leaf-crown worn by Mesopotamian goddess

FIG. 3. Roman coin of Hierapolis

Fig. 6a

FIG. 6b
Astarte plaque

FIG. 7. LM III
Cypriote crater

FIG. 2. Astarte plaque

FIG. 4. Goddess on Roman coin of Damascus

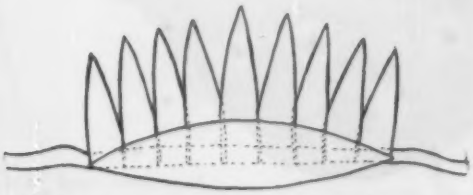

FIG. 5a. Restored crown from first shaft grave

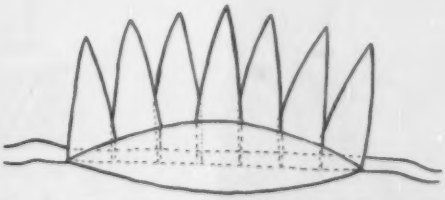

FIG. 5b. Restored crown from third shaft grave

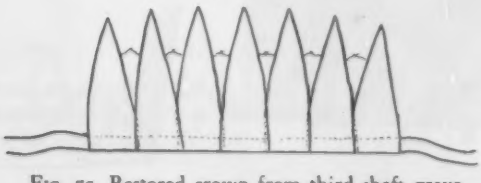

FIG. 5c. Restored crown from third shaft grave

FIG. 8a

Limestone head in Olympia

FIG. 8b

FIG. 9. Terracotta head in Ashmolean Museum

FIG. 10. Roman coin of Argos

FIG. 12a
Assyrian leaf-crowns

FIG. 12b

FIG. 11. 4th century coin of Argos

FIG. 13. Terracotta shrine in Giamalakis Collection

FIG. 14. Goddess on shield from the Idaean cave

FIG. 15. 7th century Cretan sphinx

FIG. 16. Boeotian pithos relief

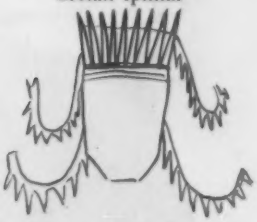

FIG. 17. Leaf-crown on Assyrian cylinder seal

FIG. 18

FIG. 19

Prehistoric goddesses

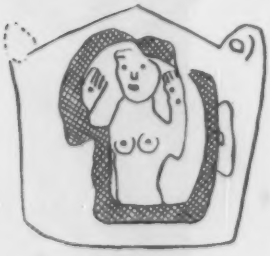

FIG. 20

FIG. 21. Proto-geometric goddess

FIG. 23. Terracotta votive object from Patso

FIG. 22. Padded horned helmet

Fig. 24. Linear signs of horned mitrai

Fig. 31. Impression on roof-tile of Samian Heraeon

Fig. 26. Astarte on cylinder seal

Fig. 25a

Horned crown of Cypriote goddesses

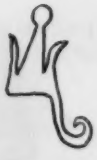

Fig. 25b

Fig. 27

Fig. 28

Fig. 29

Roman coins of Samos

Fig. 30

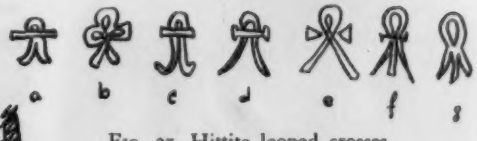

Fig. 35. Hittite looped crosses

Fig. 32 Syro-Hittite goddess Fig. 33

Fig. 34
Sacred knots

Fig. 36. Minoan looped crosses?

FIG. 1. Circus of Maxentius: south side as now cleared

FIG. 3. Head of "Omphalos Apollo" from Circus of Maxentius

FIG. 4. Sala Consilina: equipment of Oenotrio-Ausonian tomb

FIG. 2. Attic bf. skyphos from Pons Milvius

FIG. 5. Padula: equipment of Graeco-Italiote tomb

FIG. 6. Salerno: equipment of Hellenistic tomb

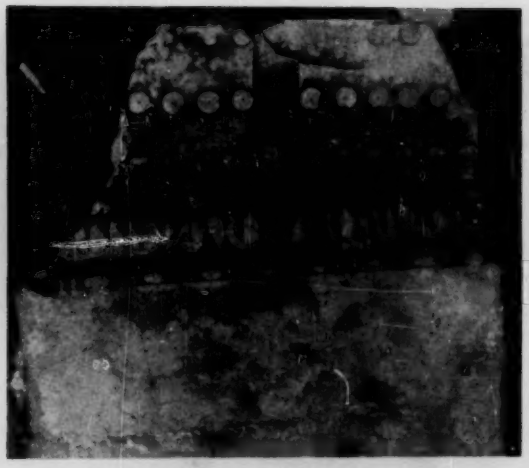

FIG. 9. Hellenistic Doric temple, cornice

FIG. 11. Marble female head

FIG. 10. Hellenistic Doric temple, sima

FIG. 12. Archaic Ionic sanctuary, lion's head spout
FIGS. 9-13. Megara Hyblaea

FIG. 13. Archaic Ionic sanctuary, cornice block

Gela, from votive deposits: fig. 15 (left) late archaic female clay mask;
fig. 16 (right) late Daedalic clay head

FIG. 14. Gela: Museo Nazionale, entrance hall

FIG. 8. Via Cassia: Tiberian mosaic pavement

FIG. 7. Locri: the theater

FIG. 1

FIG. 2

FIG. 3

FIG. 4

FIG. 1

FIG. 2

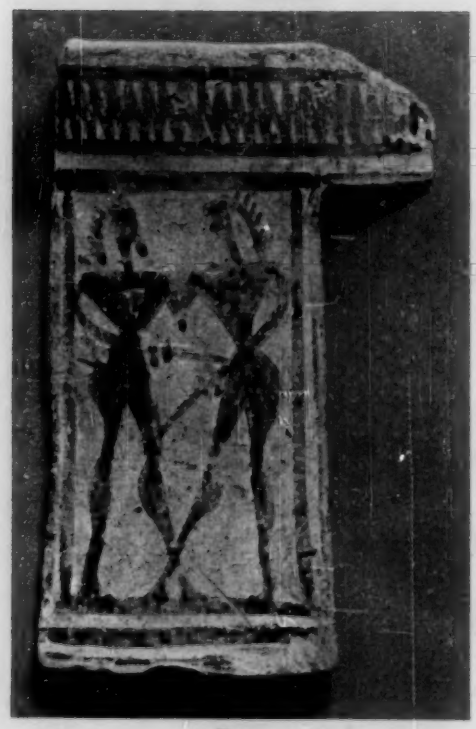

FIG. 3

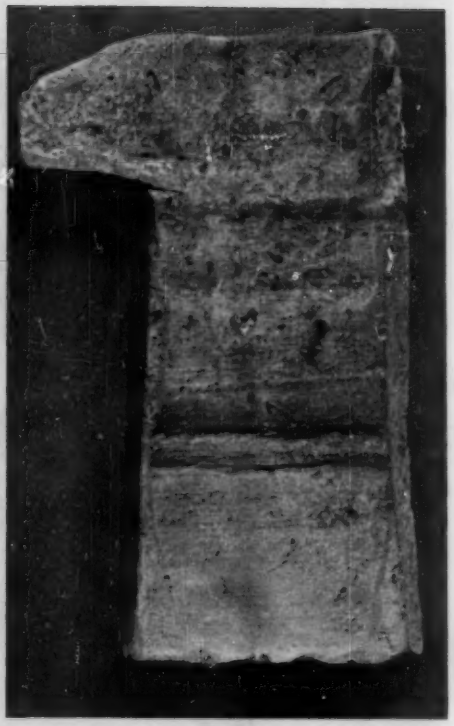

FIG. 4

FIG. 1. Griffon protome from Rhodes, Jantzen, *Griechische Greifenkessel* pl. 33

FIG. 2. Early griffon head from Samos, Jantzen, *op.cit.* pl. 1, 4

FIG. 3. Serpents protome from Samos, Jantzen, *op.cit.* pl. 49, figs. 1, 2

FIG. 4. Silver bowl from Bernardini Tomb, Poulsen, *Frühgriechische Kunst* fig. 15

FIG. 5. Earliest Etruscan cauldron with griffons, Barberini Tomb, Giglioli, *L'Arte Etrusca* pl. xi

FIG. 6. Protome griffon of early type, Barberini Tomb, Giglioli, *op.cit.* pl. xiv, 1

FIG. 7. Roman coins of Sidon with cauldron carts, *MélUSJ* 16 (1932) pl. IX

FIG. 8. Cauldron cart from Enkomi, Cyprus, Bossert, *Altsyrien* fig. 301

FIG. 9. Cauldron cart from Europe, Åberg, *Chronologie V*, fig. 86

FIG. 10. Bird cart from Veii, Montelius, *Vorklassische Chronologie Italiens* fig. 227

FIG. 11. Minoan goddess with snake frames, Nilsson, *Minoan-Mycenaean Religion* pl. II, figs. 8, 9

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GENERAL MEETING 1960

The sixty-second General Meeting of the Archaeological Institute of America will be held jointly with the Annual Meeting of the American Philological Association at the Statler Hilton Hotel, Hartford, Connecticut, on December 28, 29 and 30, 1960. Persons who wish to read papers should submit titles and abstracts in triplicate (summaries of not more than 200 words, typewritten, double-spaced, ready for publication in *AJA*) not later than October 25, 1960, to the General Secretary for distribution to the Program Committee. Abstracts should specify what projection or other equipment is required. All papers will be limited to 20 minutes, except excavation reports, for which extra time may be allotted if it is specifically requested when the summary is submitted.

CERTAMEN CAPITOLINUM XII

Entries for the Twelfth International Competition in Latin Prose should be submitted before January 31, 1961, to the Istituto di Studi Romani, Piazza dei Cavalieri di Malta 2, Rome, from which further details may be obtained.

XIth INTERNATIONAL CONGRESS OF THE HISTORY OF SCIENCE

will be held in the United States of America, 26 August-2 September, 1962. Opening sessions of the Congress will be held at Cornell University, Ithaca, New York, and the concluding sessions will be held at the American Philosophical Society, Philadelphia, Pennsylvania. The President of the Congress is Professor Henry Guerlac of Cornell University. The Secretary of the Congress is Professor C. Doris Hellman.

All inquiries should be addressed to *The Secretary, Xth International Congress of the History of Science*, Cornell University, Ithaca, New York (U.S.A.). Those wishing to receive bulletins concerning the congress are requested to communicate with the Secretary.